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A-12 SUPPORT MANUAL  
GROUND HANDLING - NORMAL  
AND EMERGENCY OPERATIONS

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SECTION II	Safety Precautions and Emergency Procedures
SECTION III	Ground Handling Procedures



SECTION I.  
GENERAL INFORMATION

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## SECTION I

### GENERAL INFORMATION

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1-1. GENERAL INFORMATION.

1-2. Ground Safety Precautions.

1-3. The safety precautions and emergency procedures contained in Section II and illustrations provided must be strictly adhered to to prevent injury to personnel and damage to the aircraft.

1-4. Ground Handling.

1-5. The Ground Handling section, Section III, contains information and illustrations as to the handling of aircraft during ground operations. This information includes instructions on towing, parking, mooring, jacking and hoisting the aircraft.

1-6. Access Openings.

1-7. The following listed illustrations will locate and identify all access panels and openings on the upper and lower surfaces of the aircraft fuselage and wings.

1-8. Upper and Lower Fuselage and Wing Access Panels and Openings.  
(See Figure 1-1.)

1-9. Aircraft External Drain and Vent Locations. (See Figure 1-2.)

1-10. This illustration will locate and identify all drains and vents about the lower fuselage, wing and nacelle sections of the aircraft.

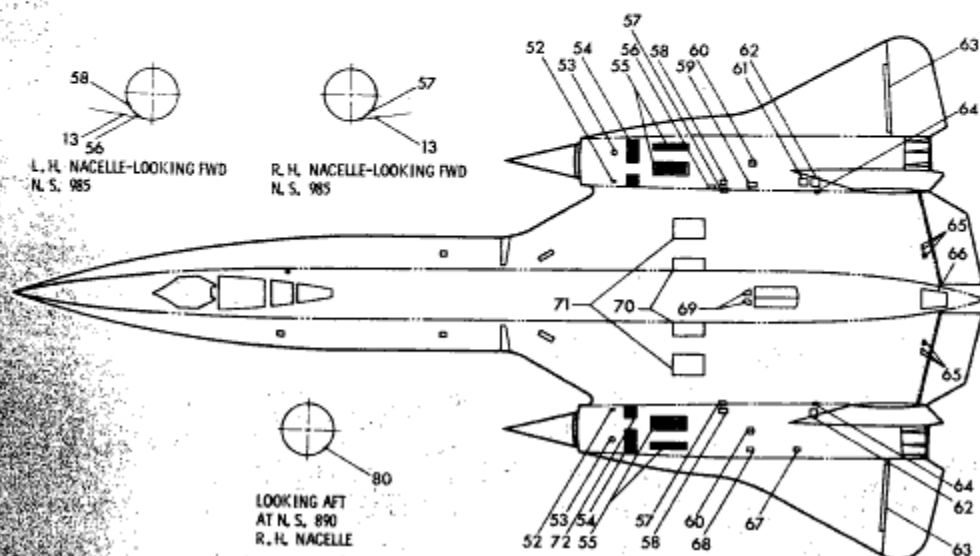


1-11. Runway/Taxiway Strength Capabilities.

1-12. In order to determine if this aircraft can taxi on existing taxiways or land on existing runways, the following data is provided :

- a. MLG Tire Foot Print 56 inches.
- b. Tire Pressure 290 psig (GN2) initial.
- c. MLG Load per tire 16,400 lbs.
- d. NLG Load per tire 9,250 lbs.
- e. UCI Index, close to 300.

# TOP VIEW



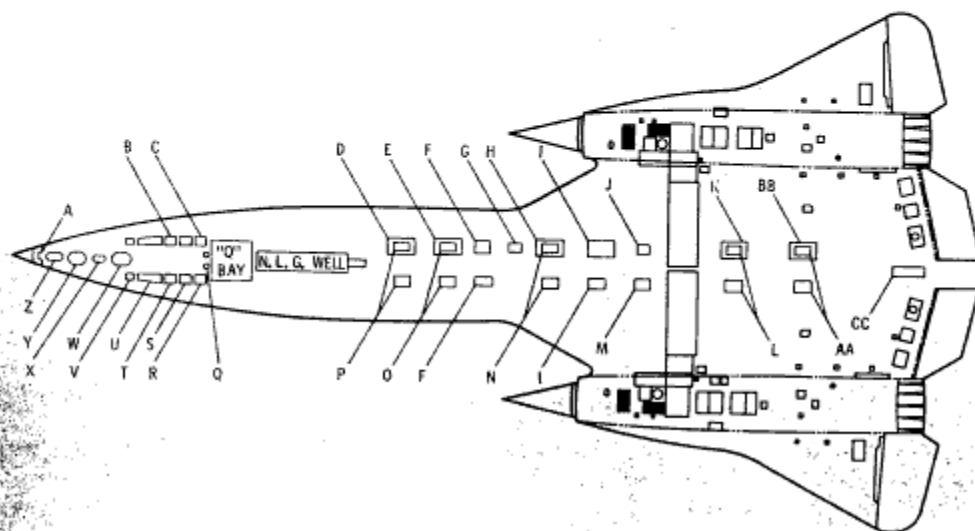
CODE	COVER NO.	COVER LOCATION	PURPOSE OF COVER
13	AW 566-2	B. S. 970 TO B. S. 986	BLOW IN DOOR AND ENG. ACCESS
52	AP 680-2	SPIKE STA 118-NEAR FILLET	INSPECT FOR FOREIGN OBJECTS
53	AP 680-2	SPIKE STA 118-TOP OF NACELLE	INSPECT FOR FOREIGN OBJECTS
54	AP 274	SPIKE STA 133-149	BYPASS SYSTEM
55	AP 264	SPIKE BLEED AIR OUTLET	
56	AW 746-2	N. S. 954 TO N. S. 970, INBD SIDE, R. H. NAC	ENGINE PILOT VALVE
57	AW 740-2	N. S. 980 INBD SIDE NAC, ABOVE FILLET	ENGINE THROTTLE ACCESS
58	AW 740-3	N. S. 980 INBD SIDE NAC	THROTTLE ACCESS
59	AW 259-97	N. S. 1010 R. H. INBD SIDE NAC	FILL CHEMICAL IGNITION
60	AW 259-18	N. S. 1010 ON TOP Q. NAC	ACCESS TO FWD ENG MOUNT
61	AW 730-4	N. S. 1072 ON R. H. NAC INBD SIDE	NOZZLE ACCESS CHEM IGNITION
62	AW 657-2	N. S. 1082 R AND L IN FILLET	RUDDER PUSHROD AND BELLCRANK RIG.
63	AW 261-80	N. S. 1082 L AND R INBD SIDE NAC	RUDDER PUSHROD AND BELLCRANK RIG.
64	AW 522-2	W. S. 210 TO W. S. 297, FWD OF ELEV HINGE	TO REMOVE OUTBD ELEVON
65	AW 247-38	B. L. 60, FWD OF ELEV HINGE	SERVO PACKAGE
66	AF 217	STA 1230 TO STA 1243	THROTTLE ACCESS
67	AW 729-17	N. S. 1072 ON L. H. NAC OUTBD SIDE	NOZZLE ACCESS CHEMICAL IGNITION
68	AW 524-79	N. S. 1010 ON L. G. NAC OUTBD SIDE	FILL CHEMICAL IGNITION
69	AF 156-91	N. S. 1008, B. L. 4 L AND R	DRAG CHUTE MECH
70	AF 338	W. S. 914 TO W. S. 954, B. L. 40	LANDING GEAR PLUMBING
71	AW 377	W. S. 914 TO W. S. 954, B. L. 84	LANDING GEAR PIVOT ACCESS
72	AP 108	SPIKE STA 133 TO 149	BYPASS SYSTEM
80	AP 263-58	N. S. 890, W. S. 146 L AND R	ACCESS TO SPIKE CONTROL MECH

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Figure 1-1 Access Panels and Openings.  
(Sheet 1 of 4)



# BOTTOM VIEW

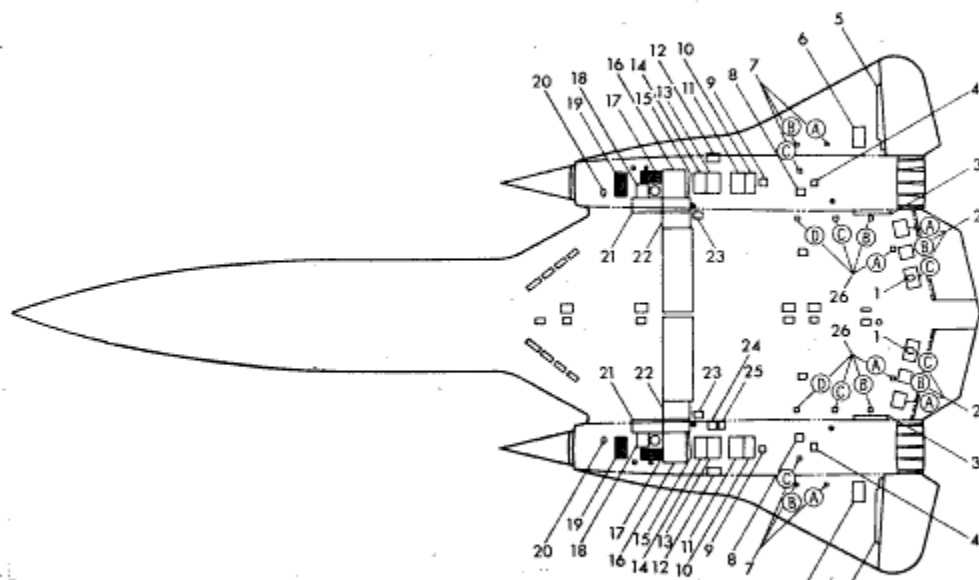


CODE	COVER NUMBER	COVER LOCATION	PURPOSE OF COVER
A	AD 243	F. S. 164 - F. S. 173	CONE, SILICONE GLASS
B	AD 163 - 122	F. S. 318 - F. S. 337	PLUMBING INST PITOT
C	AR 65012	F. S. 356 - F. S. 386	WINDOW, AN/ARN-41
D	AF 146-8	F. S. 350	NO. 1 FUEL TANK BOYHOLE
E	AF 146-8	F. S. 685	NO. 2 FUEL TANK BOYHOLE
F	AF 146-3 L/R	F. S. 767	NO. 3 FUEL TANK PUMPS
G	AD 163-45 L/R	F. S. 258 - F. S. 318	PLUMBING INST PITOT
H	AF 146-9	F. S. 799	NO. 3 FUEL TANK BOYHOLE
I	AF 146-10	F. S. 875	NO. 4 FUEL TANK BOYHOLE
J	AD 163-36R	F. S. 356 - F. S. 380	PLUMBING INST PITOT
K	AF 146-11	F. S. 1063	NO. 5 FUEL TANK BOYHOLE
L	AF 146-6 L/R	F. S. 1063	NO. 5 FUEL TANK PUMPS
M	AF 146-5 L/R	F. S. 907	NO. 4 FUEL TANK PUMPS
N	AF 146-4 L/R	F. S. 799	NO. 3 FUEL TANK PUMPS
O	AF 146-2 L/R	F. S. 685	NO. 2 FUEL TANK PUMPS
P	AF 146-2 L/R	F. S. 350	NO. 1 FUEL TANK PUMPS
Q	AA 55-3	F. S. 387	PORT SAFETY VALVE
R	AD 163-36R (R. H. ONLY)	F. S. 356 - F. S. 380	PRESSURE SENSING
S	AD 163-43 L/R	F. S. 337 - F. S. 356	PLUMBING INST, PITOT
T	AD 270-2 (R. H. ONLY)	F. S. 318 - F. S. 337	PLUMBING INST, PITOT
U	AD 163-45 L/R	F. S. 258 - F. S. 318	DOOR PITOT-TUBE INST
V	AX 163-115 L/R	F. S. 252 - F. S. 258	PLUMBING INST, PITOT
W	AX 10	F. S. 237 - F. S. 249	PLUMBING INST, PITOT
X	AX 53-3	F. S. 233 - F. S. 236	WINDOW, PERISCOPE
Y	AD 247	F. S. 218 - F. S. 230	DOOR PURGING
Z	AR 644-5	F. S. 183 - F. S. 193	GLIDE SCOPE AND LOCALIZER ANT
AA	AF 146-7 L/R	F. S. 1159	WINDOW, AN/ARN-58
BB	AF 146-12	F. S. 1159	NO. 6 FUEL TANK PUMPS
CC	AF 226	F. S. 1282 - F. S. 1289	NO. 6 FUEL TANK BOYHOLE MIXER, FUEL DUMP CONTROL SYSTEM

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Figure 1-1. Access Panels and Openings.  
(Sheet 2 of 4)

# BOTTOM VIEW



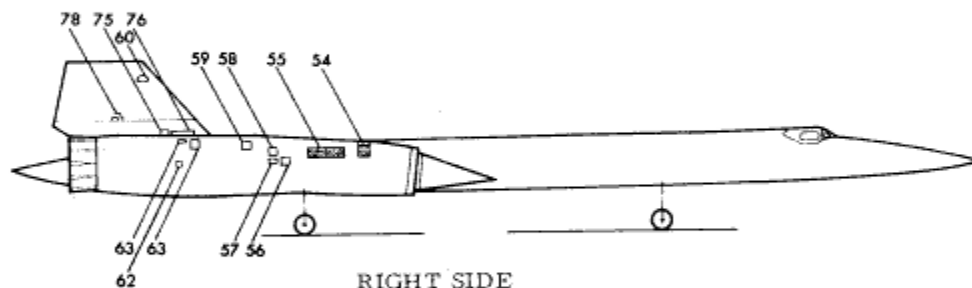
CODE	COVER NO.	COVER LOCATION	PURPOSE OF COVER
1	AW 262	W. S. 54, 17" FWD OF ELEV-HINGE	ACCESS TO INBD ELEV. SERVO
2A	AW 243-12	W. S. 40 TO W. S. 127, CENTER OF PANELS 15" FWD OF ELEV	ACCESS TO INBD ELEV SERVO AND ELEV ACT CYLINDERS
2B	AW 248-25	HINGE LINE	
2C	AW 248-26		
3	AW 381-16	B. S. 1130 TO B. S. 1200	NAC PIN JOINT
4	AW 744-12	N. S. 1110, W. S. 170	ACCESS TO EXHAUST NOZZLE CONTROL
5	AW 446	W. S. 210 TO W. S. 297 FWD OF ELEV HINGE	ACCESS TO OUTBD SERVO CYLINDERS
6	AW 545	B. S. 1146 TO B. S. 1162	ACCESS TO OUTBD ELEV SERVO VALVE
7A	AW 540-40	W. S. 214 TO W. S. 241	
7B	AW 540-31	B. S. 1122, W. S. 218	ACCESS TO CONTROL RIG PIN AND ELEV PUSHROD DISCONNECT
7C	AW 537-74	B. S. 1089, W. S. 218	
8	AW 537-77	N. S. 1096, W. S. 186	
9	AW 741-3	N. S. 1082 TO N. S. 1090	CONT TORQUE TUBE DISC AND FIRE DET SYS
10	AW 568	W. S. 164	ACCESS TO HYD FILTER
11	AW 567-11	N. S. 1040, W. S. 172	BLOW INDOOR AND ENGINE ACCESS
12	AD 189-25	B. S. 1018 TO B. S. 1034	ACCESS TO ENGINE STARTER
13	AW 566-2	B. S. 970 TO B. S. 986	ACCESS TO FUEL AND A/B CONT DOORS
14	AW 565-2	B. S. 970 TO B. S. 986	BLOW IN DOOR AND ENG ACCESS
15	AW 418	B. S. 954 TO B. S. 970	
16	3AP 31	B. S. 914 TO B. S. 930	HYD GIG CONN "B" SYSTEM
17	AP 264-7	W. S. 131 TO W. S. 151	ACCESS TO CONSTANT SPEED DRIVE UNIT
18	AP 264-8	B. S. 914 TO B. S. 944	HYD GIG CONN "R" SYSTEM
19	AP 390	N. S. 898 TO N. S. 914	ACCESS TO PLUMBING
20	AP 274	N. S. 882 TO N. S. 898	ENG BY-PASS DOOR ACTUATOR ACCESS
21	AP 150-19	N. S. 882 TO N. S. 898	INSPECT FOR FOREIGN OBJECTS
22	AW 417	SPIKE STA 133 TO 148	PLUMBING ACCESS AND NAC PIN JOINTS
23	AW 475-4R	SPIKE STA 118	ACCESS TO FUEL SYSTEM
24	AW 745-2	N. S. 873 TO N. S. 914	ACCESS TO HYD FILTER
25	AW 762	W. S. 131 TO W. S. 150	ACCESS TO FUEL AND A/B CONTROL
26A	AW 304	B. S. 914 TO B. S. 954	ACCESS TO BENDIX FUEL CONTROL
26B	AW 304	W. S. 107 TO W. S. 131	
26C	AW 304	N. S. 970, W. S. 128	ELEVON PUSHROD AND BELLCRANK RIGGING
26D	AW 304	N. S. 970 TO 986, B. L. 140 R. H.	
		B. S. 990 TO B. S. 1000	
		B. S. 1204, W. S. 87	
		B. S. 1189, W. S. 122	
		B. S. 1130, W. S. 120	
		B. S. 1090, W. S. 116	

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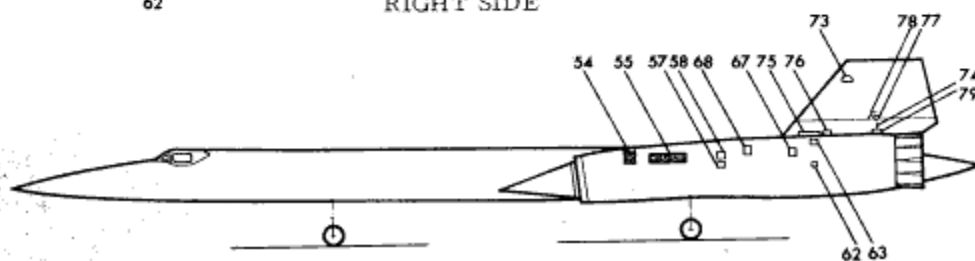
Figure 1-1 Access Panels and Openings

(Sheet 3 of 4)

# SIDE VIEW



# RIGHT SIDE

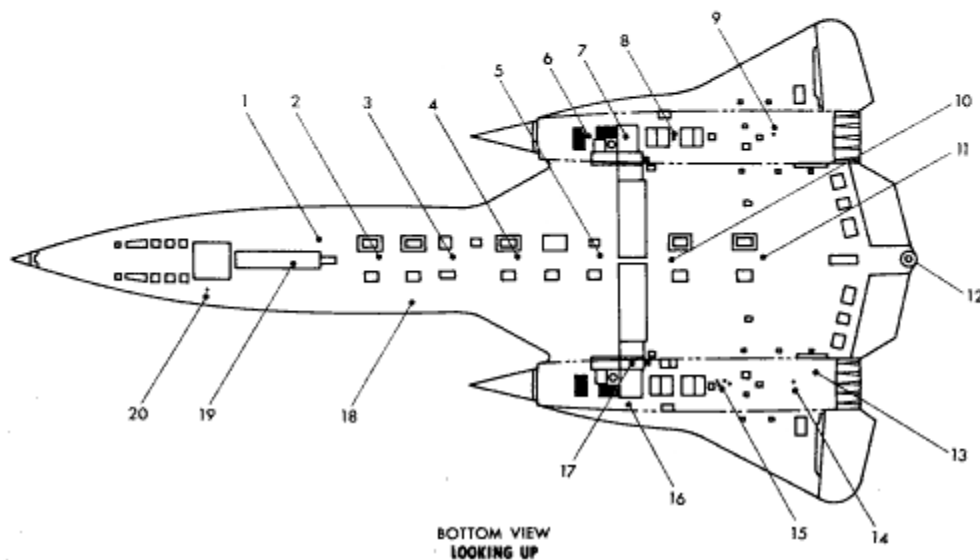


# LEFT SIDE

CODE	COVER	COVER LOCATION	PURPOSE OF COVER
54	AP 274	SPIKE STA 133 - 149	BYPASS SYSTEM
55	AP 264	SPIKE BLEED AIR OUTLET	
56	AW 746-2	N. S. 954 TO N. S. 970 INBD SIDE, R. H. NAC	ENGINE PILOT VALVE
57	AW 740-2	N. S. 980 INBD SIDE NAC ABOVE FILLET	ENGINE THROTTLE ACCESS
58	AW 740-3	N. S. 980 INBD SIDE NAC	THROTTLE ACCESS
59	AW 259-97	N. S. 1010 R. H. INBD SIDE NAC	FILL CHEMICAL IGNITION
60	AW 259-18	N. S. 1010 ON TOP OF NAC	ACCESS TO FWD ENG MOUNT
62	AW 657-2	N. S. 1082 R AND L IN FILLET	RUDDER PUSHROD AND BELLCRANK RIG
63	AW 261-80	N. S. 1082 L AND R, INBD SIDE NAC	RUDDER PUSHROD AND BELLCRANK RIG
67	AW 729-17	N. S. 1072 ON L. H. NAC, OUTBD SIDE	NOZZLE ACCESS CHEMICAL IGNITION
68	AW 524-79	N. S. 1010 ON L. G. NAC OUTBD SIDE	FILL CHEMICAL IGNITION
73	RD 3607-11	RUDDER POST	RUDDER POST ACCESS
74	AE 301-3	N. S. 1142 TO N. S. 1180	RUDDER SERVO ACCESS
75	AE 4-38	N. S. 1090, BOTTOM OF FIN	RUDDER PUSHROD AND BELLCRANK
76	AE 4-60	N. S. 1090, BOTTOM OF FIN	RUDDER PUSHROD AND BELLCRANK
77	AE 25-16	FIN STA 56 TO 62	RUDDER GUDGEON
78	AE 25-17	FIN STA 56 TO 62	RUDDER GUDGEON
79	AE 4-24	STA 1180, BOTTOM	ACCESS TO SERVO

NA12-2-1-26111

Figure 1-1. Access Panels and Openings.  
(Sheet 4 of 4)



- 1 FUELING RECEPTACLE SCUPPER DRAIN
- 2 NUMBER 1 FUEL TANK WATER DRAIN
- 3 NUMBER 2 FUEL TANK WATER DRAIN
- 4 NUMBER 3 FUEL TANK WATER DRAIN
- 5 NUMBER 4 FUEL TANK WATER DRAIN
- 6 SPIKE SYSTEM SEAL DRAINS
- 7 HYDRO PUMPS SHAFT DRAIN, REMOTE GEAR BOX FILL AND DRAIN
- 8 FORWARD ENGINE COMPONENT DRAINS
  - A - MAIN FUEL PUMP PAD
  - B - HYDRAULIC PUMP PAD
  - C - MAIN FUEL CONTROL
  - D - MAIN FUEL PUMP SEAL
  - E - A/B PUMP DRAIN
  - F - UPPER A/B CONTROL
  - G - LOWER A/B CONTROL
  - H - COMPRESSOR BLEED ACTUATOR
- 9 A/B MANIFOLD DUMP LINE, REAR ENGINE MOUNT RING DRAIN
- 10 NUMBER 5 FUEL TANK WATER DRAIN
- 11 NUMBER 6 FUEL TANK WATER DRAIN
- 12 FUEL TANK VENT AND DUMP PORT

- 13 RUDDER SERVO PAN DRAIN
- 14 EXHAUST NOZZLE CONTROL DRAIN, A/B COMBUSTION CHAMBER DRAIN
- 15 CENTER ENGINE COMPONENT DRAINS
  - A - HYDRAULIC PUMP SHAFT
  - B - ACCESSORY OVERBOARD SEAL
  - C - COMBUSTION CHAMBER FORWARD OVERBOARD SEAL
  - D - WINDMILL BYPASS OVERBOARD DUMP
- 16 FUEL PUMP SHAFT DRAIN
- 17 HEAT EXCHANGER HEADER DRAIN
- 18 DEFUEL DRAIN FITTING
- 19 LN<sub>2</sub> FILL AND DRAIN
- 20 OXYGEN BLOW OUT DISCS (2 PLACES)

#### NOTE

- 1 LOCATIONS ARE APPROXIMATE
- 2 DRAIN OPENINGS ARE TYPICAL RIGHT AND LEFT NACELLE

ML12-2-1-00

Figure 1-2. Drain and Vent Locations.



## SECTION II

### EMERGENCY PRECAUTIONS AND EMERGENCY PROCEDURES

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## SECTION II

### SAFETY PRECAUTIONS AND EMERGENCY PROCEDURES

#### LIST OF ILLUSTRATIONS

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2-1. SAFETY PRECAUTIONS AND EMERGENCY PROCEDURES.

2-2. Ground Safety Precautions.

2-3. Grounding Aircraft. (See Figure 2-1.)

2-4. In order to guard against the ever present dangers of static electricity, all aircraft must be effectively grounded with a low resistant ground wire at all times and should be removed only when it is necessary to move the aircraft. Prior to applying all external electrical power, each individual power unit should be independently grounded.

2-5. Ground Run-Up Danger Areas. (See Figure 2-2.)

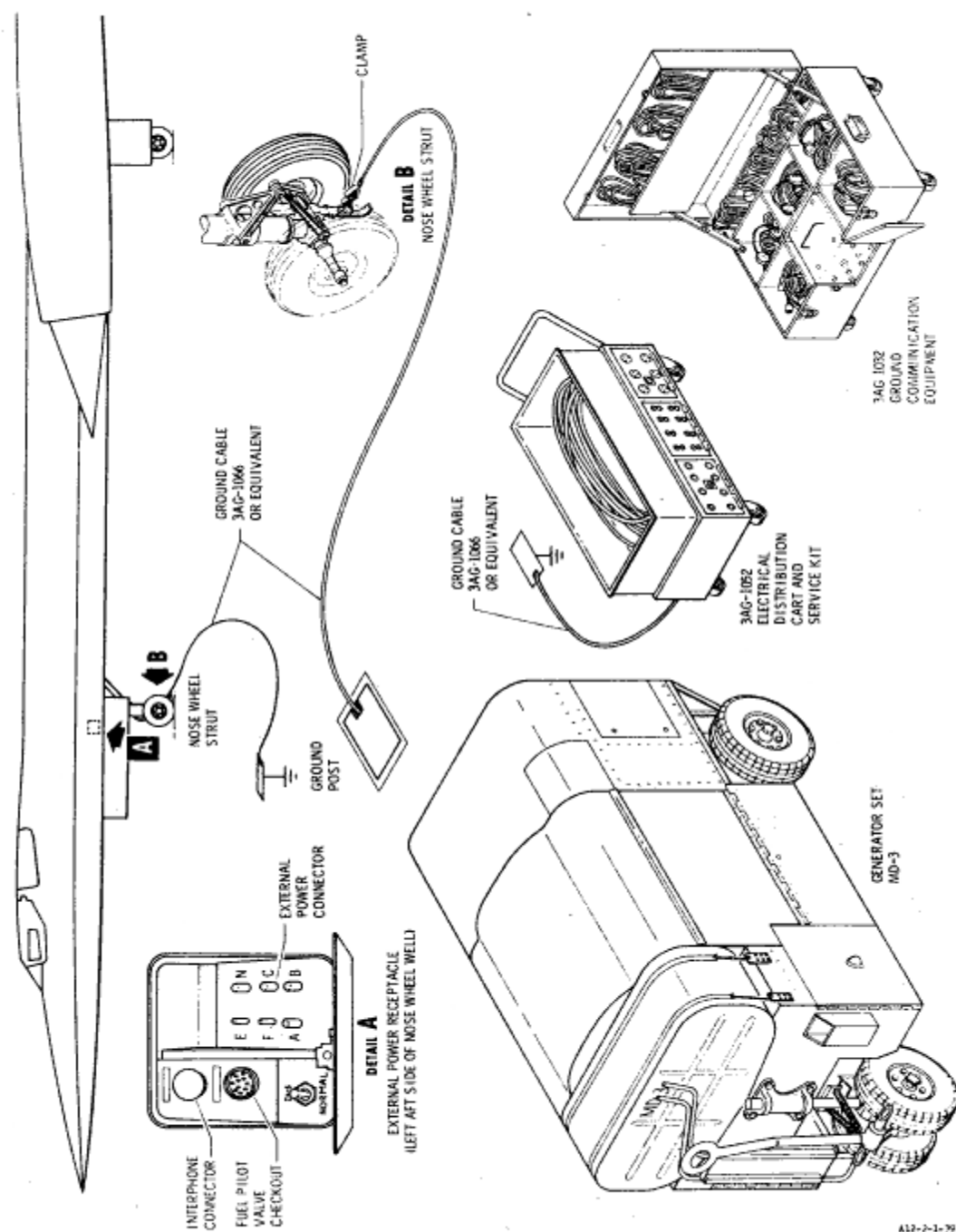
2-6. Ground operation of the engine can result in damage to equipment and injury to personnel if recommended safety precautions are not observed.

2-7. Movable Surface Hazards. (See Figure 2-3.)

2-8. During ground operation and maintenance of the aircraft it is necessary to operate all movable surfaces. In all cases, personnel and equipment must be clear of the area involved before operation of any movable surfaces.

2-9. Internal Ground Safety Devices. (See Figure 2-4.)

2-10. External Ground Safety Devices.. (See Figure 2-5.)



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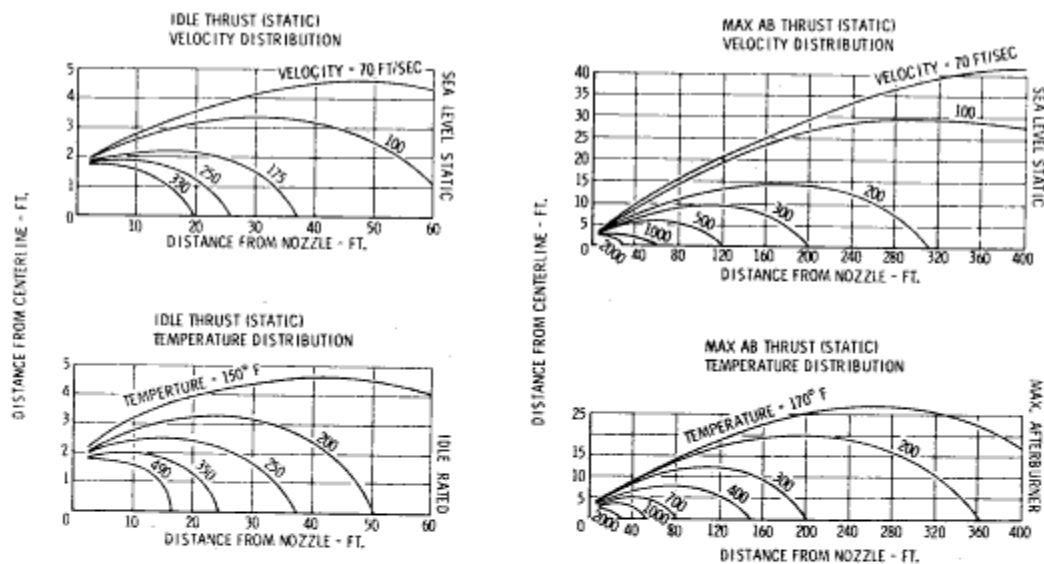
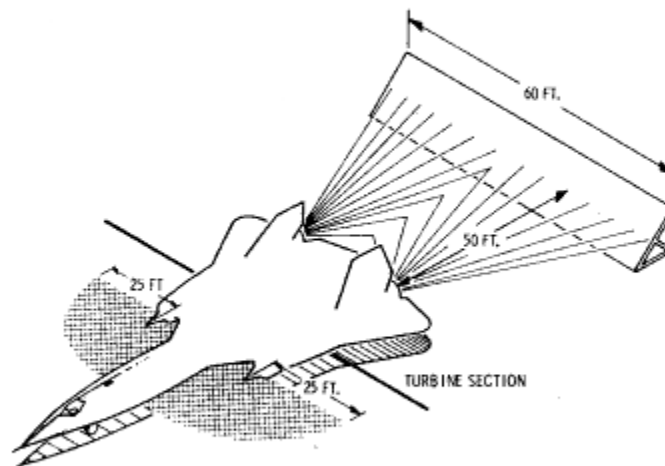
Figure 2-1. Static Ground Strap.



## DANGER AREAS

### NOTE

- \* THE AREA NEAR THE INTAKE DUCTS AND THE EXHAUST IS VERY DANGEROUS - KEEP CLEAR.
- \* DURING RUNUP, ENGINE NOISE CAN CAUSE PERMANENT DAMAGE TO EARS WITHIN 100 FEET, USE EAR PLUGS. WITHIN 50 FEET EAR PLUGS AND PROTECTIVE COVERS.
- \* IF BLAST DEFLECTOR IS NOT AVAILABLE, CLEAR AREA FOR 500 FEET AFT OF ENGINE
- \* REMAIN CLEAR OF THE PLANE OF ROTATION OF THE TURBINE SECTION IN AC STA #10321



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Figure 2-2. Run-up Danger Areas.

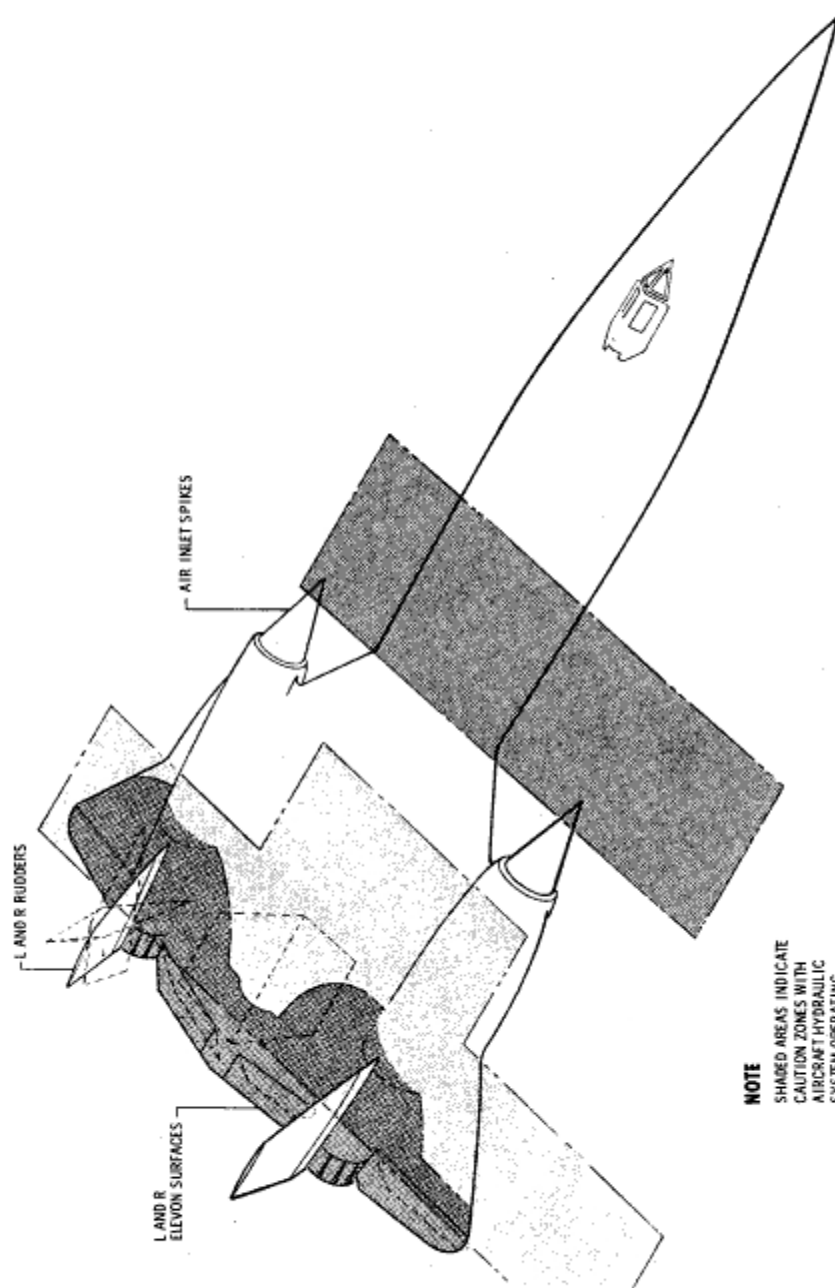
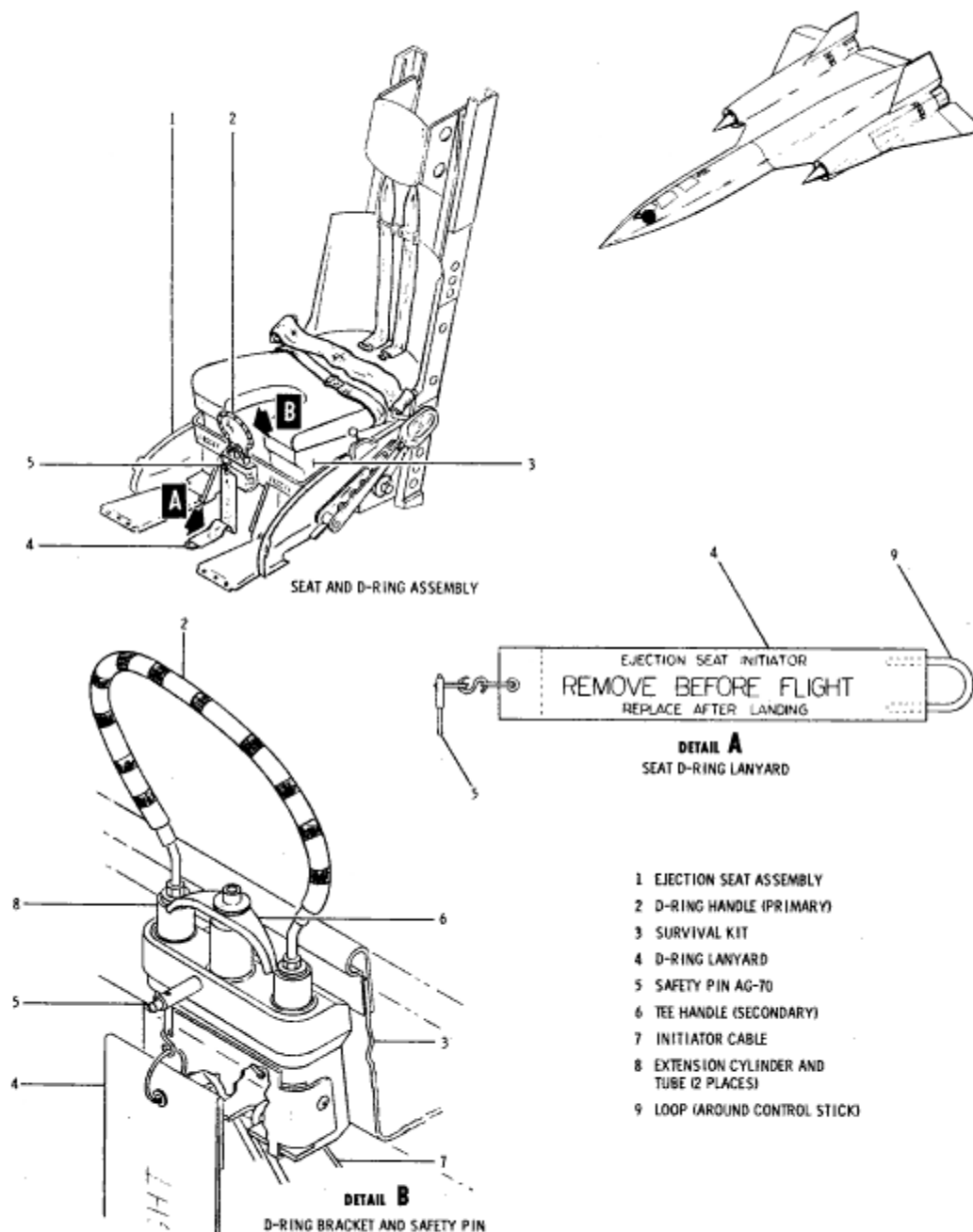


Figure 2-3. Movable Surface Hazards.



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Figure 2-4. Internal Safety Devices.  
(Sheet 1 of 4)

**WARNING**  
SAFETY PIN SHALL BE INSTALLED  
DURING ALL GROUND OPERATION

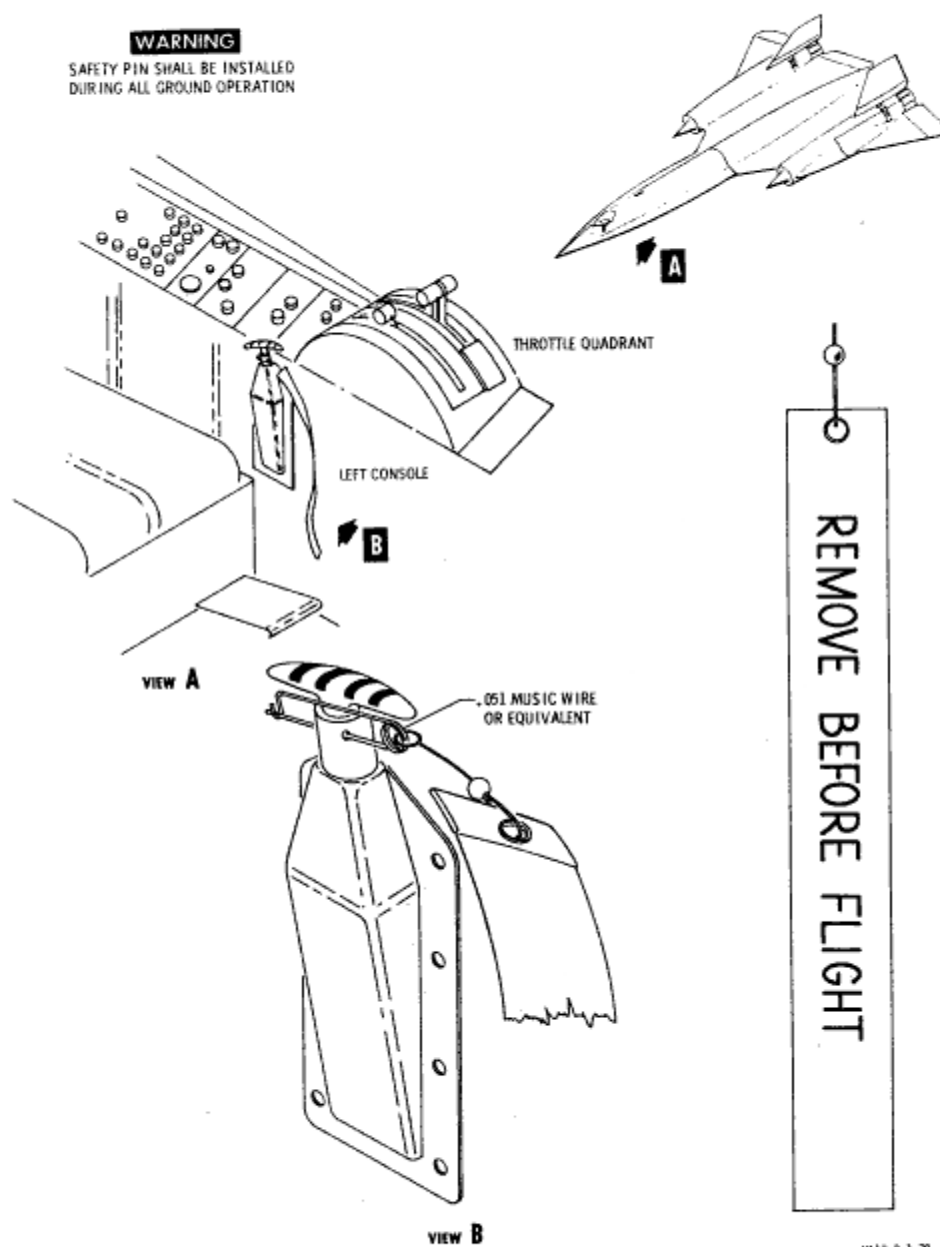


Figure 2-4. Internal Safety Devices.  
(Sheet 2 of 4)



○ REMOVE BEFORE FLIGHT

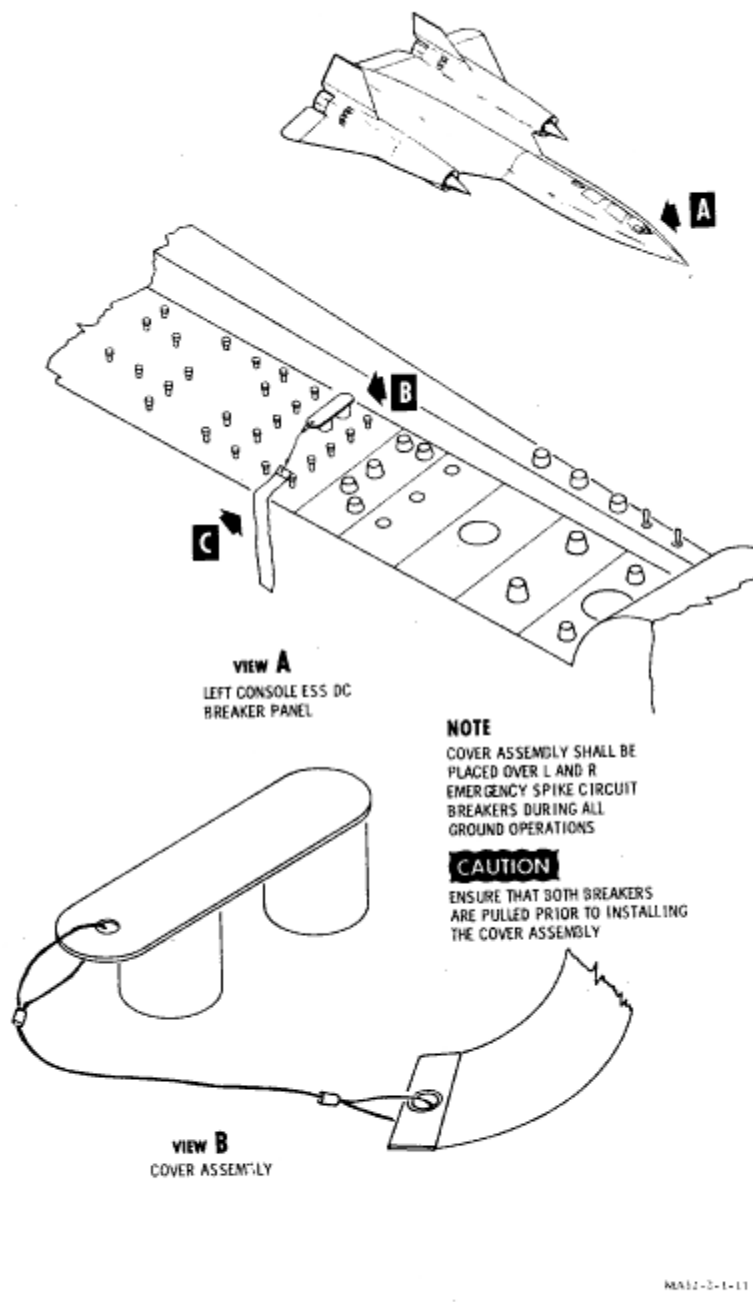


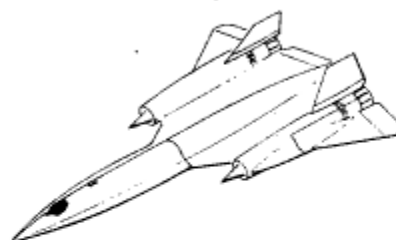
Figure 2-4. Internal Safety Devices.  
(Sheet 3 of 4)

**NOTE**

GROUND HANDLING PROP ASSY  
SHALL BE INSTALLED AT ALL  
TIMES WITH CANOPY OPEN.

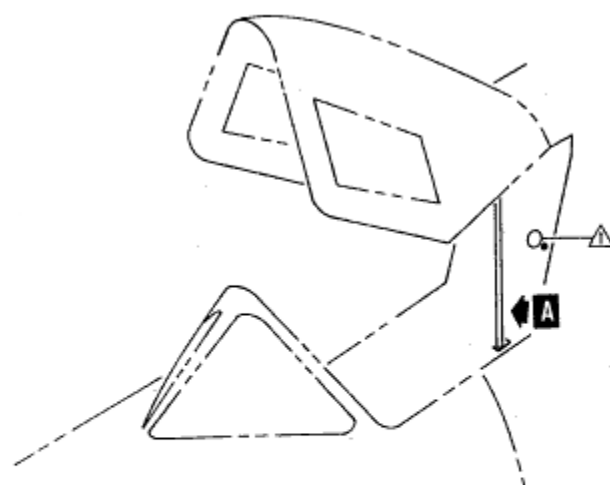
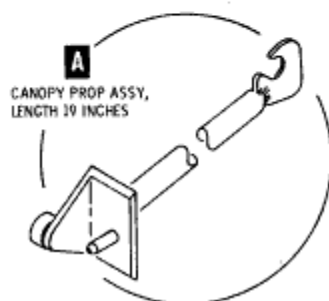
MAY BE INSTALLED AT  
EITHER AFT CANOPY LATCH  
POSITION LEFT OR RIGHT.

CANOPY LATCH HANDLE  
MAY BE PLACED IN THE  
CLOSED POSITION TO  
SECURE PROP ASSY BASE.



**CAUTION**

CHECK CANOPY COUNTERBALANCE  
SYSTEM FOR N<sub>2</sub> CHARGE PRIOR TO  
REMOVING PROP ASSY AND  
CLOSING CANOPY



⚠ N<sub>2</sub> GAGE AND FILLER  
VALVE LOCATION

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Figure 2-4. Internal Safety Devices.  
(Sheet 4 of 4)

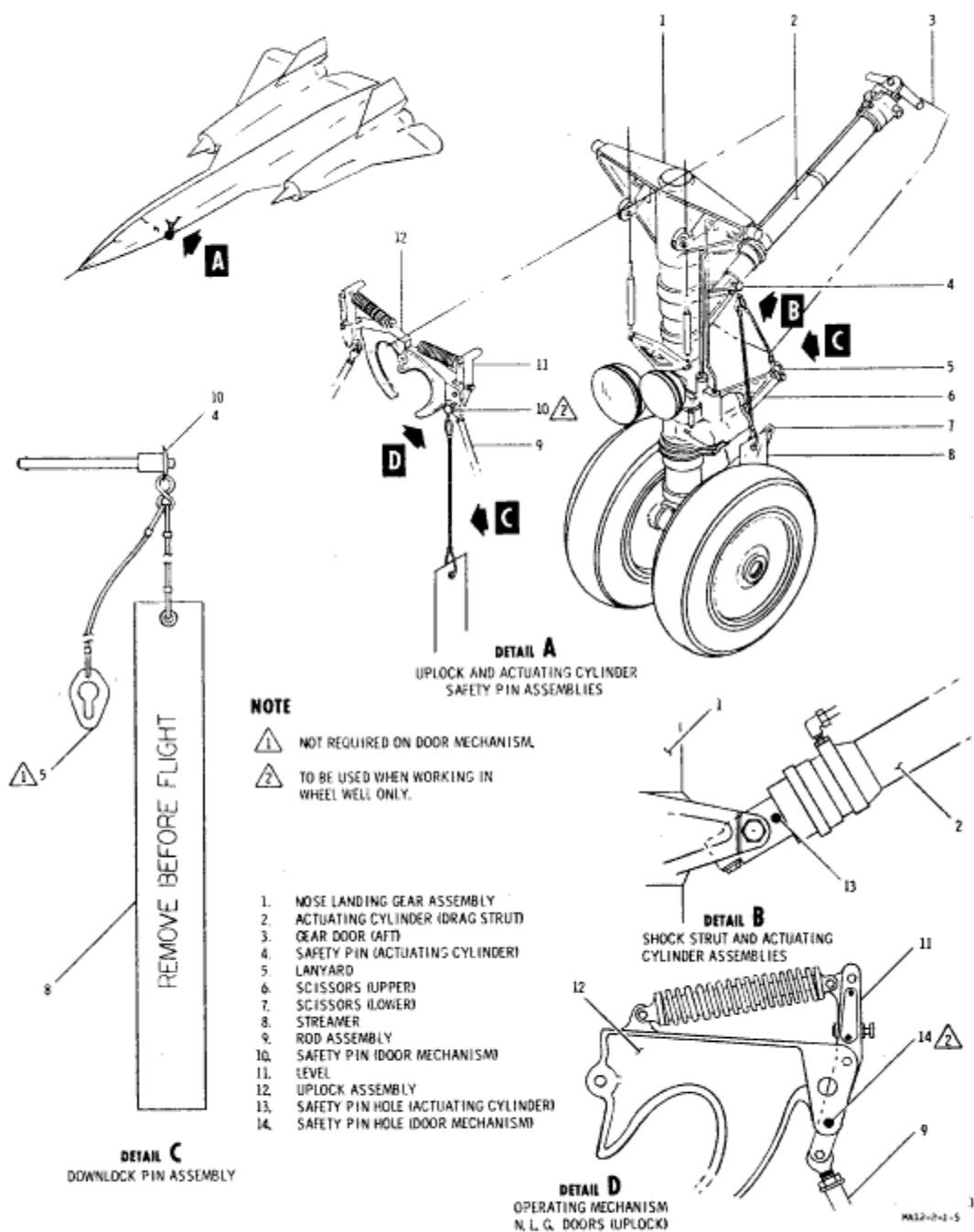


Figure 2-5. External Safety Devices.  
(Sheet 1 of 5)

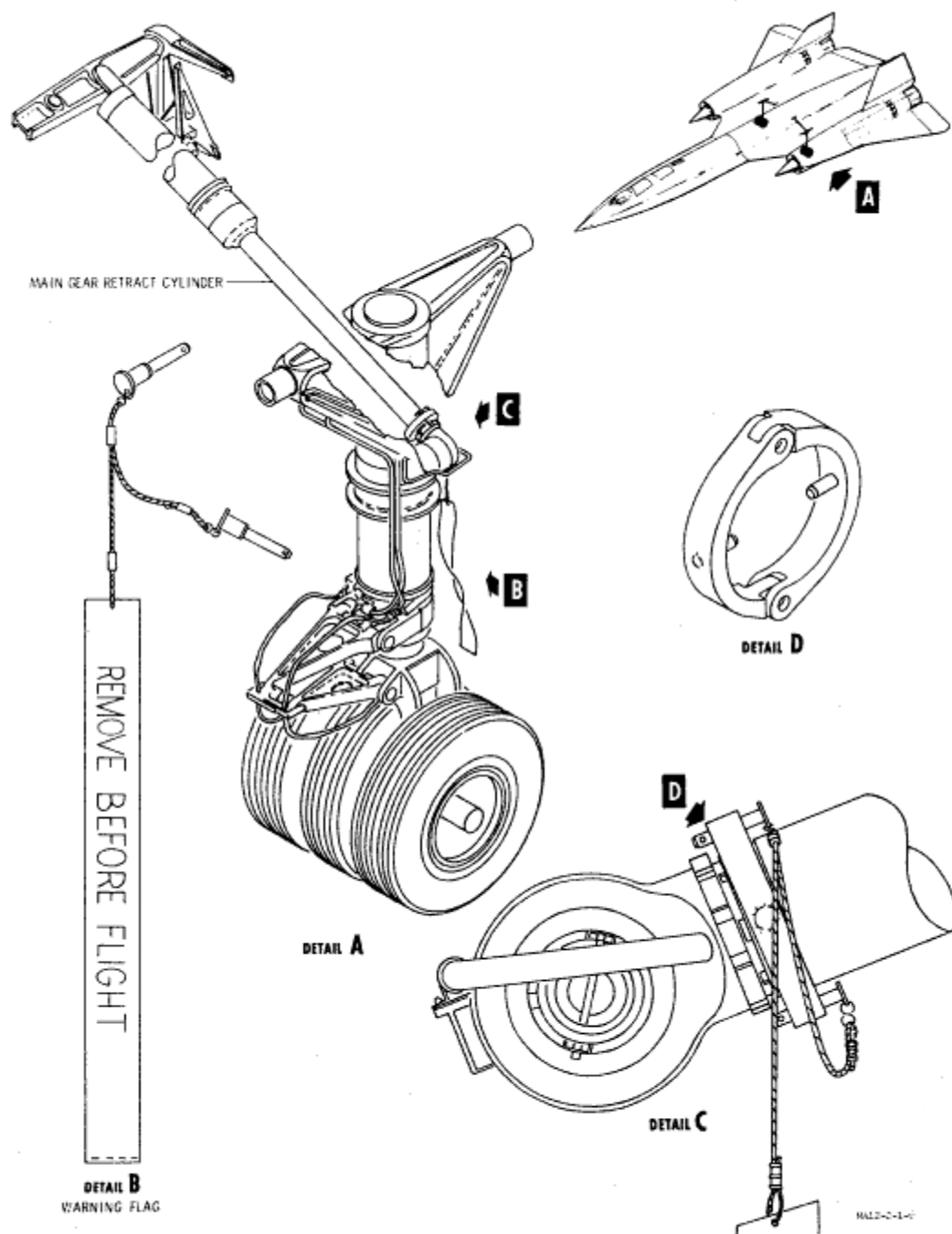


Figure 2-5. External Safety Devices.

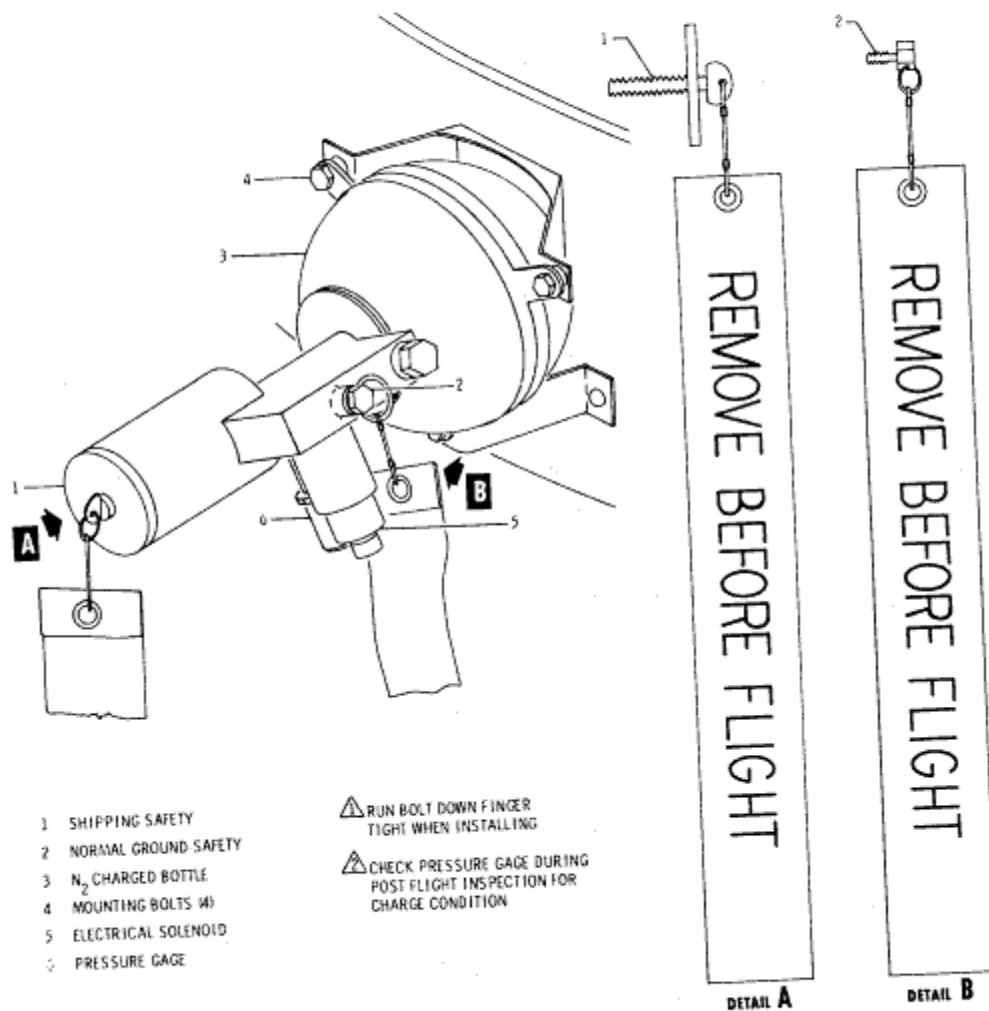
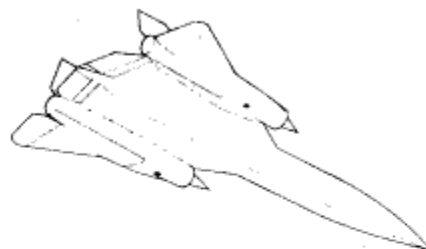
(Sheet 2 of 5)

# NOTE

ACCESS TO SPIKE EMERGENCY BOTTLE IS  
THRU AP26A-BL OR 6R PANEL

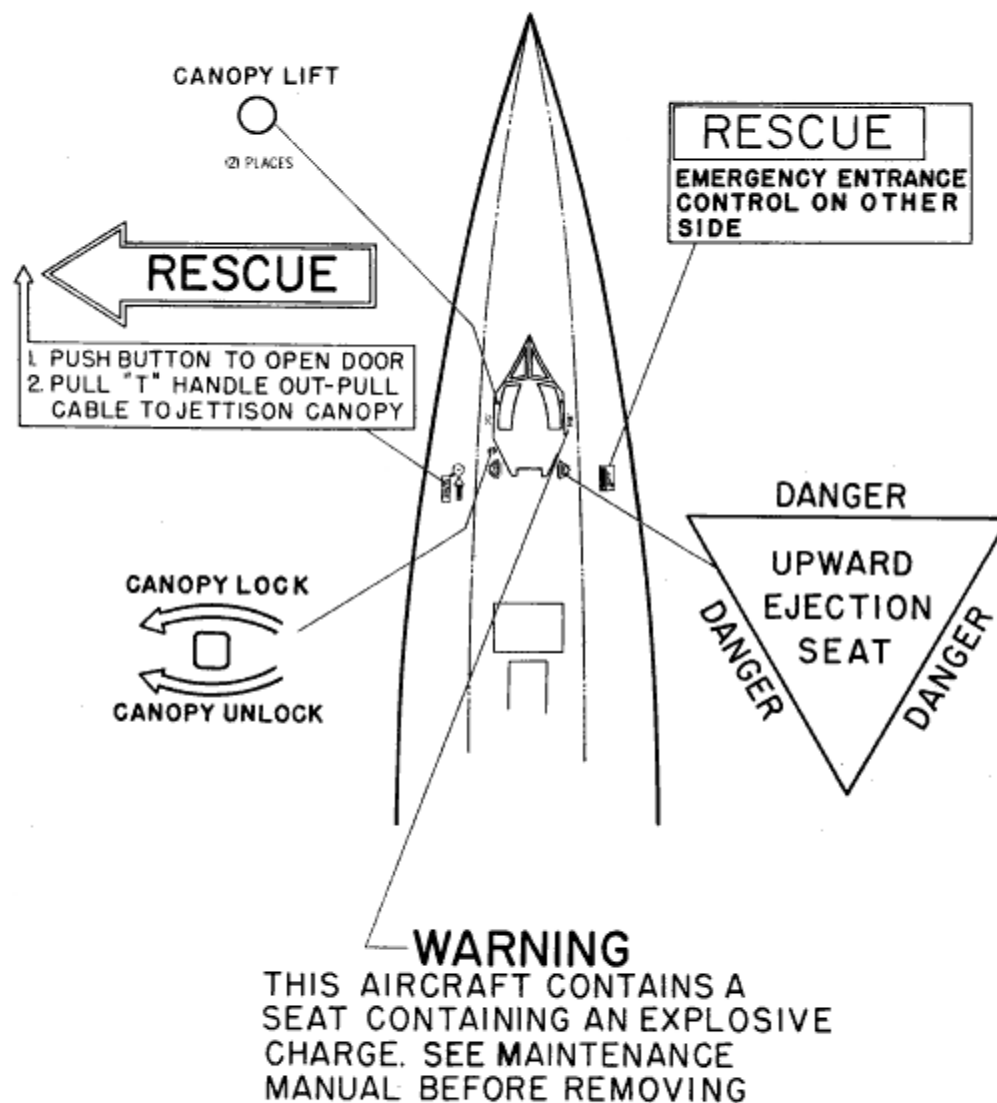
NORMAL GROUND SAFETY DEVICE SHOULD  
BE INSTALLED WHEN ACCESS PANEL IS REMOVED.

EMERGENCY SPIKE CIRCUIT BREAKERS ON  
COCKPIT LEFT CONSOLE SHOULD BE PULLED  
DURING MAINTENANCE.



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Figure 2-5. External Safety Devices.  
(Sheet 3 of 5)



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Figure 2-6. Crash Rescue Procedures.  
(Sheet 1 of 9)

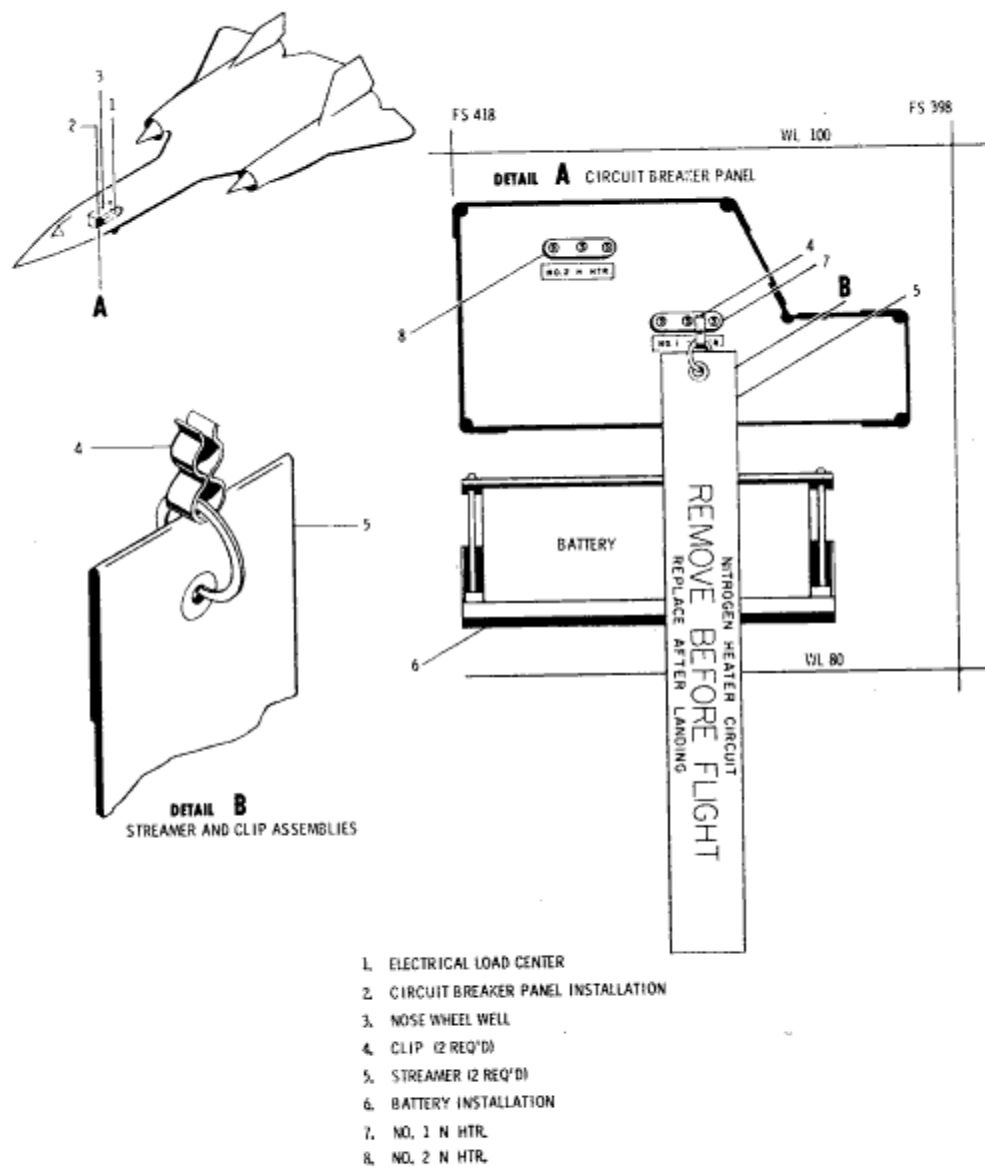


Figure 2-5. External Safety Devices.  
(Sheet 4 of 5)



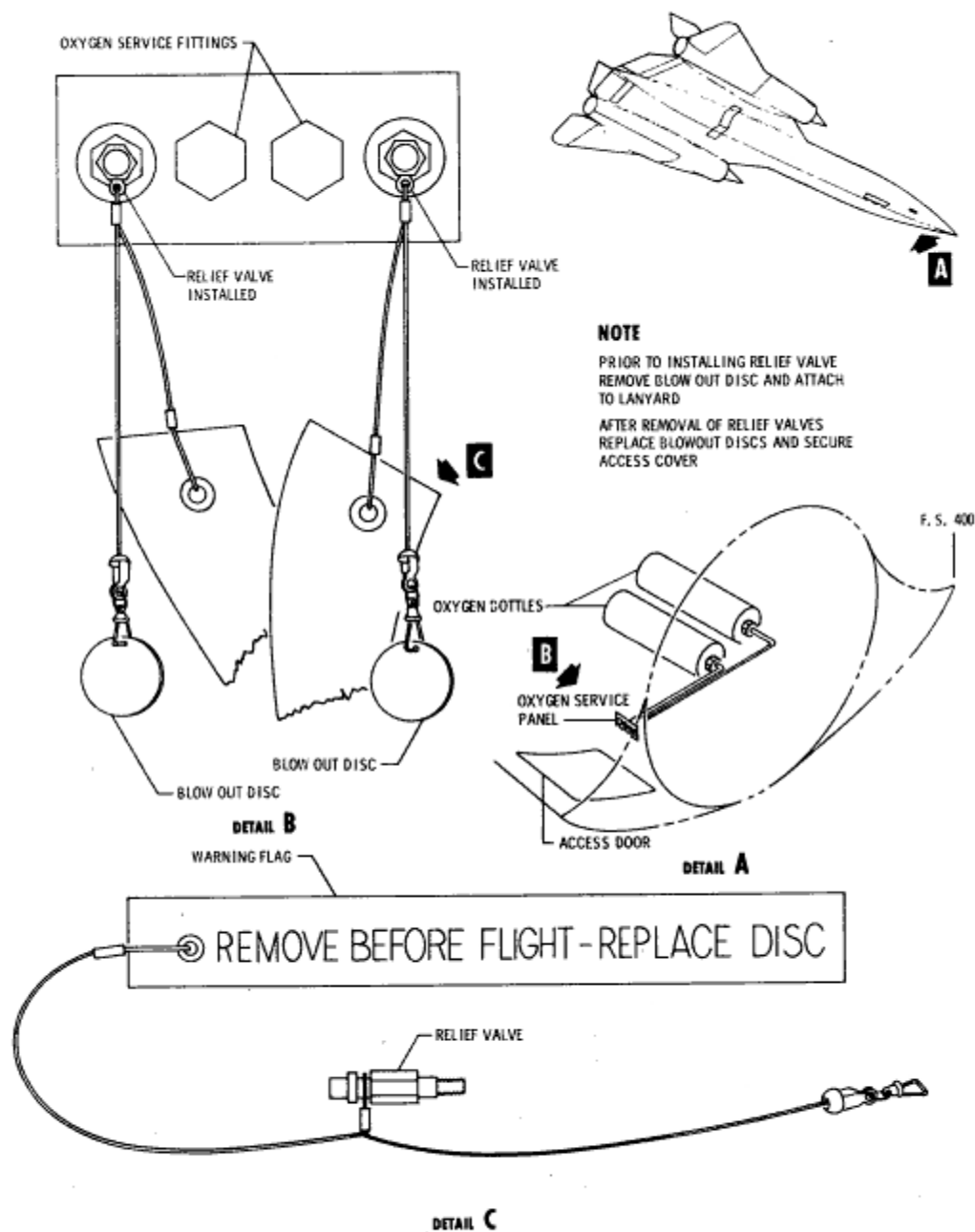


Figure 2-5. External Safety Devices.  
 (Sheet 5 of 5 )

2-11. Crash Rescue Procedures.

2-12. The safety precautions listed in the following paragraphs and illustrations shall be strictly adhered to to prevent injury to the personnel involved.

Note

The following information is intended for crash site use to assist rescue crews in determining the most practical and safest way to assist the pilot in evacuating the aircraft.

CAUTION

All ground rescue crews shall wear asbestos suits and gloves due to the possibility of encountering hot aircraft structure resulting from high speed flights.

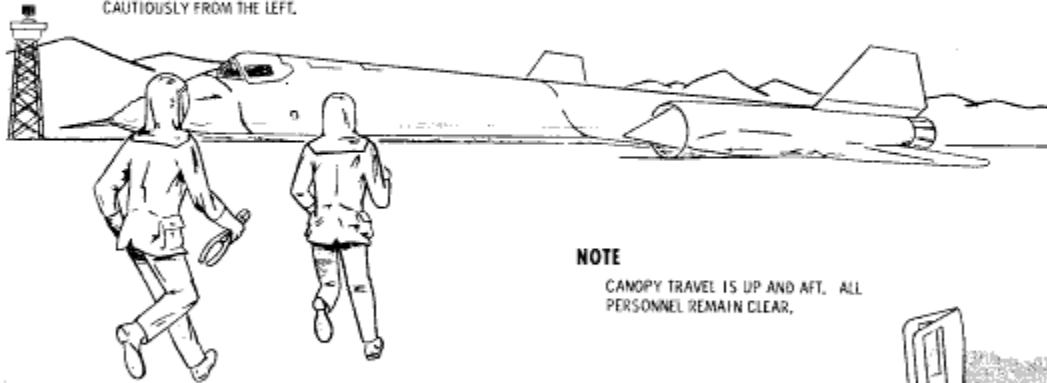
- 2-13. Crash Rescue Markings. (See Figure 2-6, Sheet 1.)
- 2-14. Crash Rescue Procedures.
- 2-15. Removal of the canopy by the external jettison method is the primary means of gaining immediate access to the cockpit. (See Figure 2-6, Sheet 2.)
- 2-16. Conditions existing during the emergency could possibly dictate the method required to remove the canopy. To remove the canopy employing the manual opening mechanism, see Figure 2-6, Sheets 3 and 4.

WARNING

A hazardous condition can exist regardless of which method is used to open and remove the canopy. It is imperative that the ballistic line to the catapult

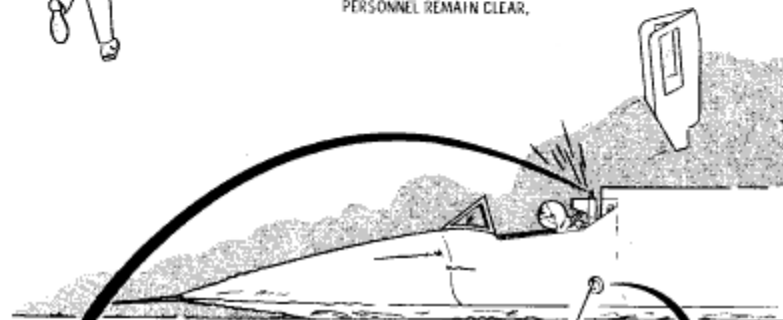
## CRASH RESCUE PROCEDURES

APPROACH AIRCRAFT QUICKLY BUT CAUTIOUSLY FROM THE LEFT.



### NOTE

CANOPY TRAVEL IS UP AND AFT. ALL PERSONNEL REMAIN CLEAR.

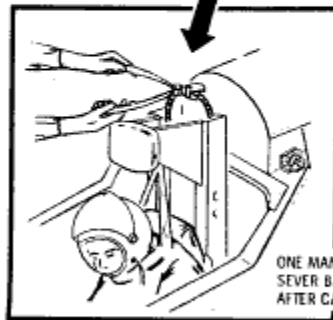


REMOVE JETTISON ACCESS COVER BY PRESSING QUICK DISCONNECT. REMOVE PULL HANDLE. UNCOIL EXCESS CABLE, APPROX. 6 FEET.

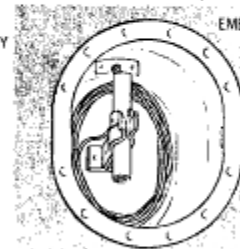


### WARNING

DO NOT APPLY PRESSURE TO CABLE UNTIL FULLY UNCOILED. PULL SHARPLY AND CANOPY WILL JETTISON INSTANTLY.



ONE MAN WILL CARRY BOLT CUTTERS TO QUICKLY SEVER BALLISTIC LINE TO CATAPULT IMMEDIATELY AFTER CANOPY JETTISONS.

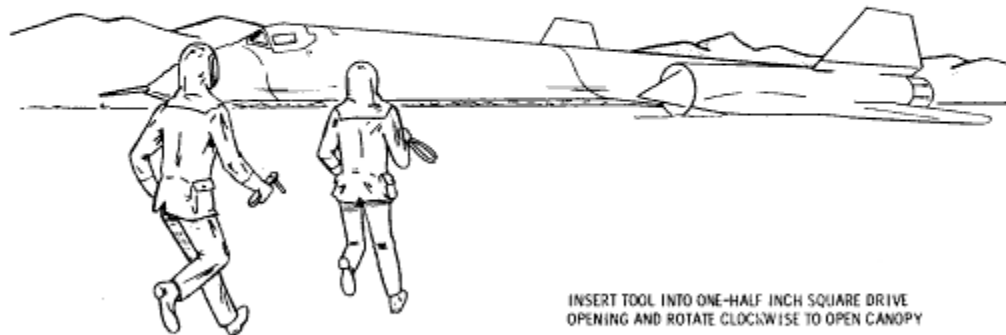


EMERGENCY RELEASE

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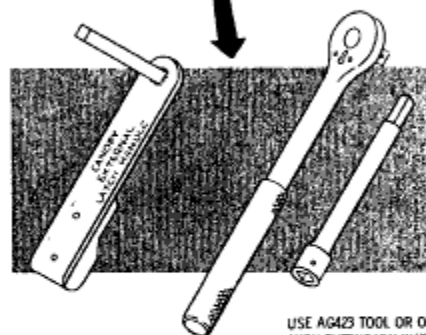
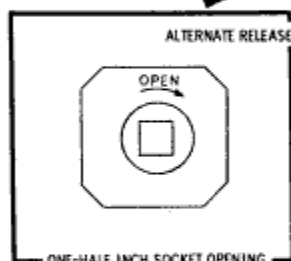
Figure 2-6. Crash Rescue Procedures.

## CRASH RESCUE PROCEDURES



APPROACH AIRCRAFT QUICKLY BUT CAUTIOUSLY FROM THE LEFT. ONE MAN WILL CARRY BOLT CUTTERS AND ONE MAN WILL CARRY SPECIAL TOOL TO OPEN CANOPY MANUALLY.

INSERT TOOL INTO ONE-HALF INCH SQUARE DRIVE OPENING AND ROTATE CLOCKWISE TO OPEN CANOPY



USE AG423 TOOL OR ONE-HALF INCH EXTENSION WITH RATCHET OR LEVER BAR.

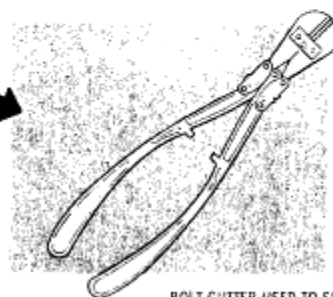
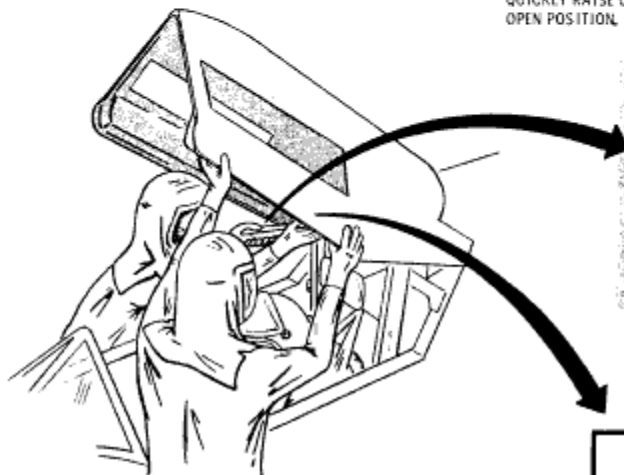
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M112-2-1-9(2)

Figure 2-6. Crash Rescue Procedures.

# CRASH RESCUE PROCEDURES



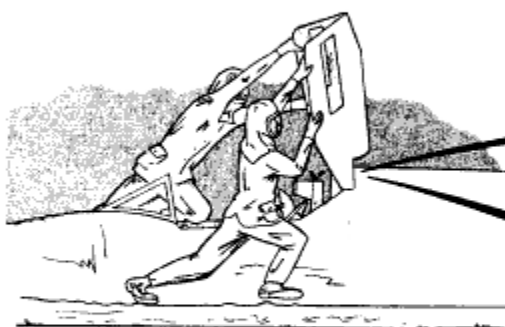
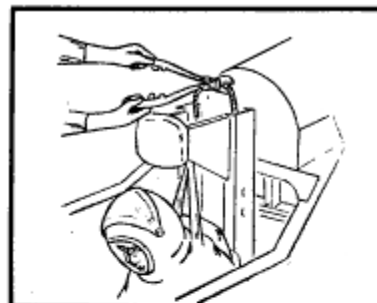
QUICKLY RAISE CANOPY TO ITS NORMAL OPEN POSITION. USE CAUTION.



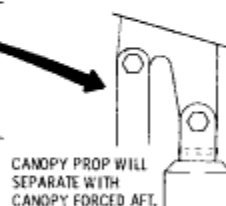
BOLT CUTTER USED TO SEVER BALLISTIC LINE TO CATAPULT.

## WARNING

IMMEDIATELY SEVER BALLISTIC LINE TO CATAPULT WHEN CANOPY IS OPENED.



BOTH MEN SHALL GRASP CANOPY AT THE MOST FORWARD POINT AND ROTATE CANOPY AFT ABOUT THE HINGE LINE. COMPLETE ACCESS TO COCKPIT IS NOW POSSIBLE FOR PILOT REMOVAL.



CANOPY PROP WILL SEPARATE WITH CANOPY FORCED AFT.

CANOPY HINGE PIN WILL SHEAR WHEN CANOPY IS FORCED AFT.



RIVET WILL SHEAR FROM CANOPY ACTUATOR WITH CANOPY FORCED AFT.

RA32-2-1-3/31

Figure 2-6. Crash Rescue Procedures.  
(Sheet 4 of 9)

be severed immediately upon gaining access to  
the cockpit.

- 2-17. Forcible Entry. (See Figure 2-6, Sheet 5.)
- 2-18. This information will be added when available.
- 2-19. Once access to the cockpit is possible rescue personnel can immediately begin with the pilot removal procedure. (See Figure 2-6, Sheet 6.)

#### CAUTION

Shut off normal oxygen supply immediately  
upon access to the cockpit.

- 2-20. Procedures as shown in Figure 2-6, Sheet 6, represent the quickest and safest method of releasing the pilot from the arresting harness, emergency equipment, seat and subsequent removal from the cockpit.

- 2-21. Emergency Pressure Suit Handling. (See Figure 2-6, Sheets 7 & 8.)
- 2-22. The following sequence is recommended for normal removal of equipment:

- a. Boots
- b. Gloves
- c. Outer Garment
- d. Helmet
- e. Suit

#### Note

Remove helmet by operating release and lift  
clear, severing the two oxygen hoses from

To be added at a later date.

**Figure 2-6. Crash Rescue Procedures.**  
**(Sheet 5 of 9)**



## CRASH RESCUE PROCEDURES

### NOTE

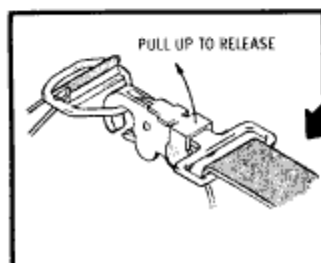
THREE MEN REQUIRED TO REMOVE PILOT, ONE ON EACH SIDE AND ONE ASTRIDE THE COCKPIT IN FRONT OF PILOT.

MANUAL  
CABLE  
CUTTER

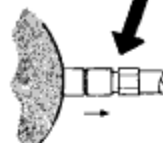
### WARNING

IF CUTTERS OR SHEARS ARE USED TO REMOVE PILOT, TURN NORMAL OXYGEN CONTROL OFF (LEFT CONSOLE)

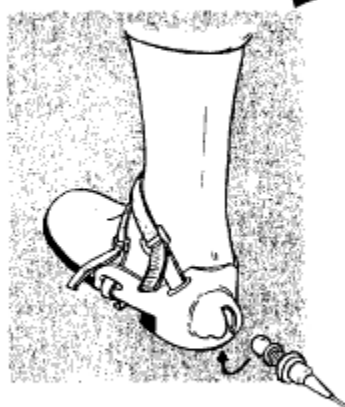
HELMET FACE PLATE WILL OPEN TO PREVENT SUFFOCATION (APPROX. 1/2 INCH) WHEN OXYGEN SUPPLY IS REMOVED FROM HELMET. INTERCOM CORD WILL AUTOMATICALLY DISCONNECT UPON REMOVAL.



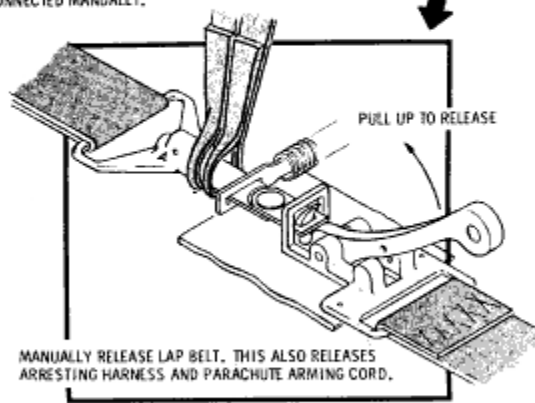
RELEASE AT THREE PLACES SHOWN TO REMOVE PILOT FROM PARACHUTE.



EMERGENCY OXYGEN LINES TO BE DISCONNECTED MANUALLY. (2 PLACES)



FOOT RETENTION CABLES WHICH MAY BE MANUALLY RELEASED OR USE MANUAL CABLE CUTTER.



MANUALLY RELEASE LAP BELT. THIS ALSO RELEASES ARRESTING HARNESS AND PARACHUTE ARMING CORD.

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Figure 2-6. Crash Rescue Procedures.  
(Sheet 6 of 9)

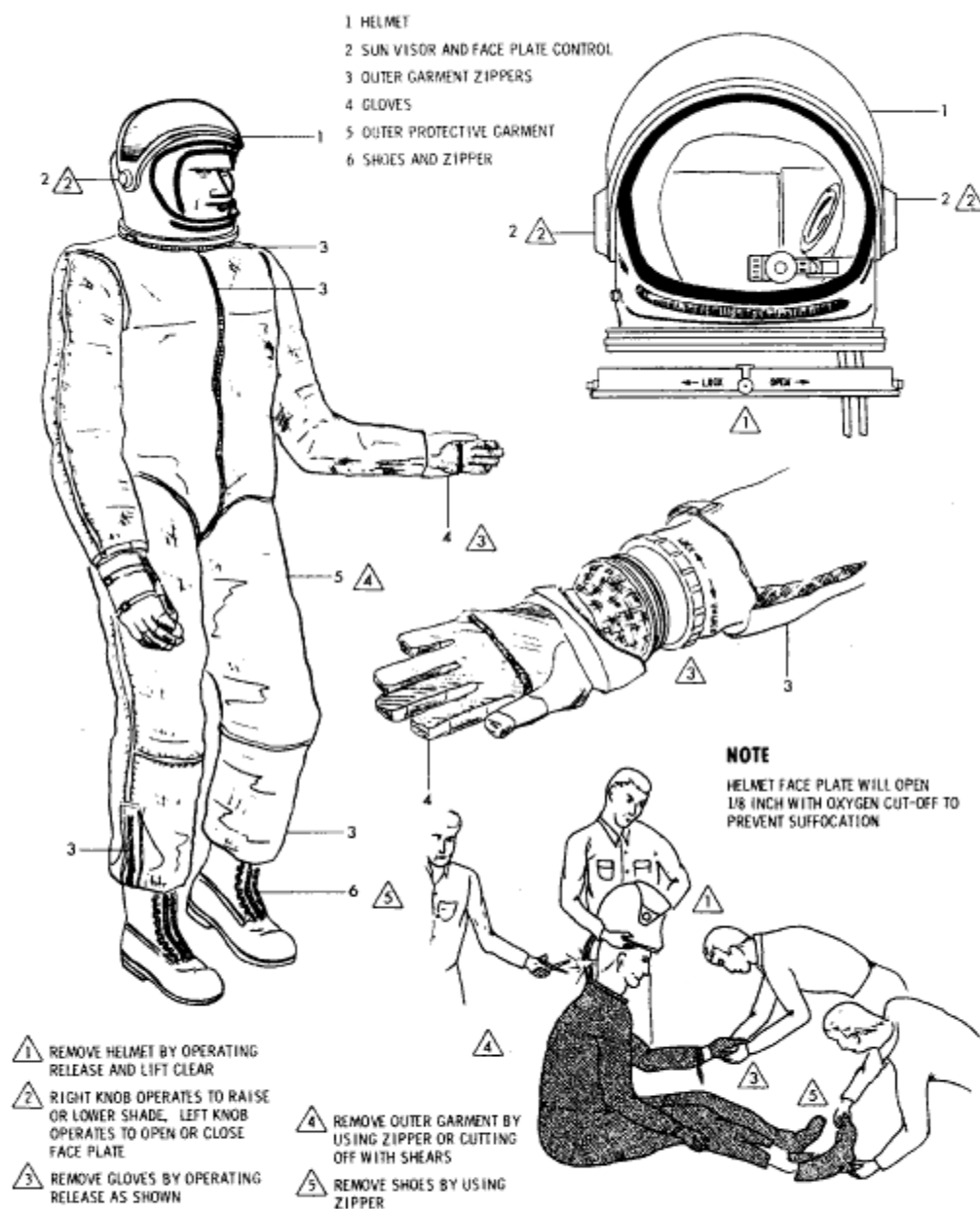


Figure 2-6. Crash Rescue Procedures.  
(Sheet 7 of 9)

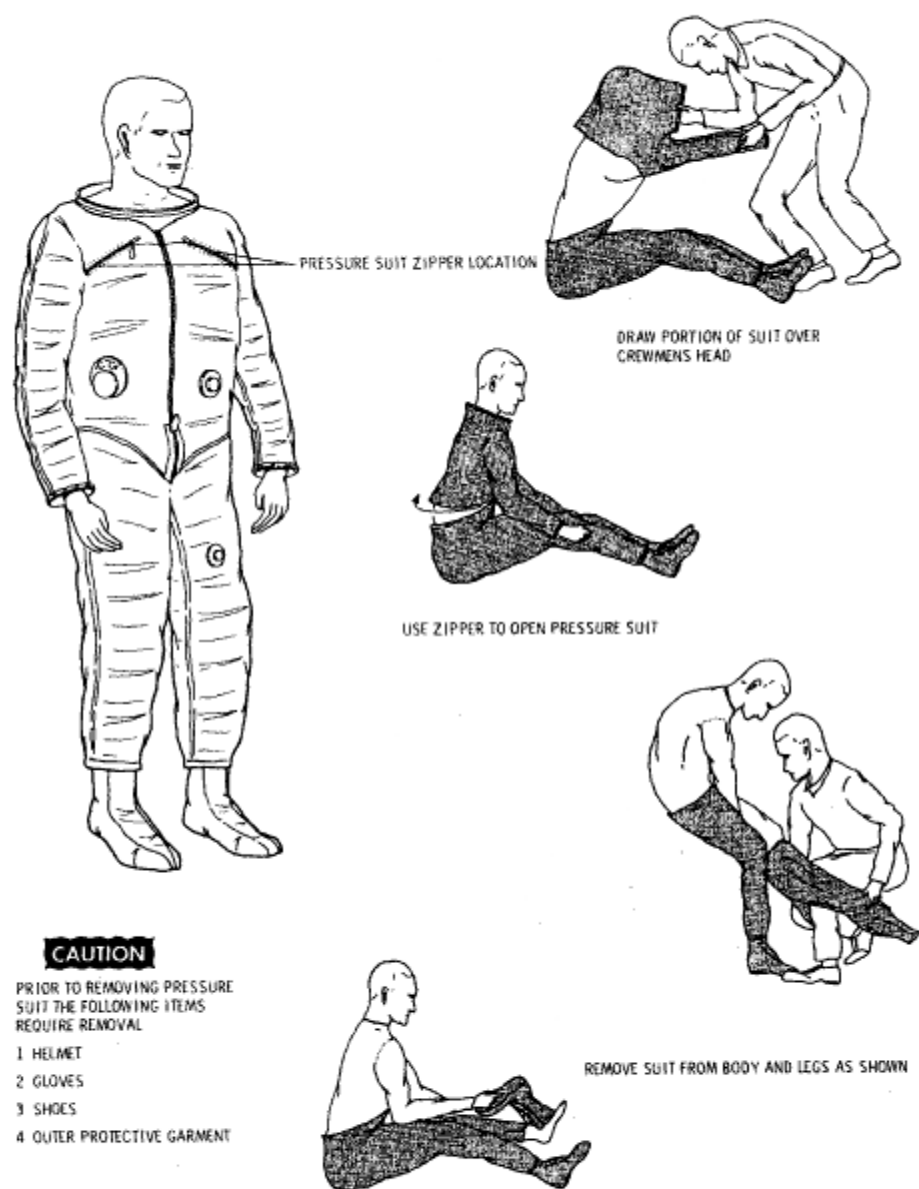


Figure 2-6. Crash Rescue Procedures.  
 (Sheet 8 of 9)

suit to helmet. If time permits, open outer  
garment front zipper and open main suit  
zipper for access to oxygen disconnects  
inside pressure suit.

WARNING

If crew is injured, open face plate only until  
a medical doctor arrives.

2-23. Engine Shutdown Procedure. (See Figure 2-6, Sheet 9.)

2-24. Should the emergency be such that the engines are still developing  
power, the procedures as shown in Figure 2-6, Sheet 9, will provide the  
quickest and safest means of stopping the engines, shutting off the oxygen  
supply and deactivating the electrical busses.

2-25. Handling of TEB, Chemical Ignition Fuel During Crash Rescue  
Procedures.

WARNING

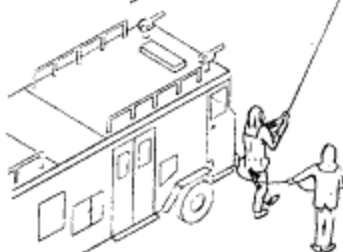
Procedures are established in the Flight  
Manual which require the pilot to dump the  
chemical fuel during an emergency. If this

## CRASH RESCUE PROCEDURES

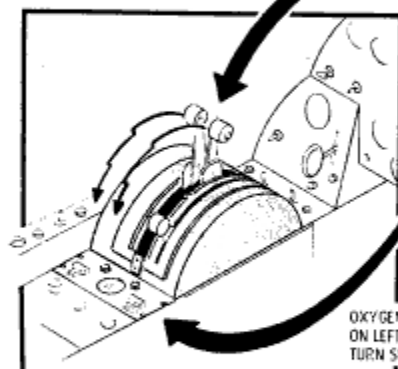
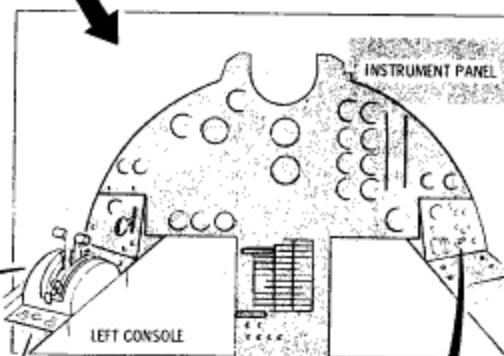
IF ENGINES ARE STILL RUNNING AT HIGH RPM AFTER A CRASH, APPROACH TO COCKPIT IS NOT SAFE BECAUSE OF INTAKE SUCTION HAZARD.



IF CONDITIONS PERMIT, MANEUVER A TRUCK TAIL-GATE FIRST AGAINST THE SIDE OF THE FUSELAGE IN FRONT OF INTAKE TO CUT DOWN SUCTION HAZARD ON MAN WITH LIFE LINE.

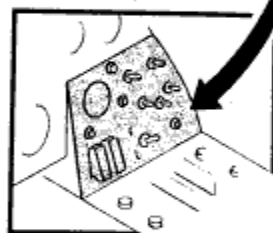


SECURE A LIFE LINE AROUND MAN'S WAIST, ANCHOR IT TO THE CRASH TRUCK AND APPROACH COCKPIT FROM THE NOSE. OPEN CANOPY AND RETARD THROTTLES, TURN OFF OXYGEN, AND TURN OFF BATTERY.



ENGINE CONTROLS ARE LOCATED ON LEFT CONSOLE. TO SHUT DOWN ENGINES, PULL BOTH THROTTLES BACK TO "OFF", NOTE DETENTS.

OXYGEN SWITCHES ARE LOCATED ON LEFT CONSOLE, AFT OF THROTTLE. TURN SWITCHES TO "OFF" POSITION.



BATTERY SWITCH IS LOCATED ON LOWER RIGHT INSTRUMENT PANEL, FORWARD AND ABOVE RIGHT CONSOLE. TURN TO "OFF" POSITION.

NAEP-2-1-1 (51)

Figure 2-6. Crash Rescue Procedures.  
(Sheet 9 of 9)

is not possible the condition could become serious. There are no quick opening access panels near the chemical fuel tank and lines. Should a TEB fire be the primary concern, the immediate area about the tank location may be flooded with water or CO<sub>2</sub> until it can be determined that a hazard no longer exists.

2-26. Damage Prevention.

2-27. The following information consists of data and recommended procedures for the extinguishing of fires by aircraft maintenance personnel.

2-28. Fire and Explosion Hazards.

2-29. Maintenance personnel should be familiar with the fire and explosion hazards of this aircraft so that precautionary measures can be taken. Fires and explosions generally occur when a flammable substance, oxygen (air) and a source of ignition are brought together. The primary flammable substances in this aircraft are fuel, hydraulic fluid, lubricating oil and greases and pyrophoric fluid used in the engine ignition system.

Pure oxygen can cause a fire or explosion simply by contact with these substances. Common sources of ignition are electric arcs, flame and hot surfaces. The following conditions are particularly hazardous.

- a. The mixture of fuel vapor and air in the fuel tanks and vent system is explosive when ignited. However, PFI Fuel is not volatile as other jet type fuels.
- b. Fuel, hydraulic fluid or engine oil spraying in a fine mist will explode or flash when ignited.
- c. Fires or explosions can be produced spontaneously when flammable substances contact oxygen of high purity.
- d. The pyrophoric fluid (triethylborane) used in the engine ignition system will ignite immediately upon exposure to air.

2-30. Fire Fighting Precautions.

2-31. Maintenance personnel should be alert for possible aircraft ground fires and be prepared to act rapidly and effectively if a fire is discovered.

It is recommended that maintenance personnel become familiar with the following types of fire hazards and precautions.

- a. How access is gained quickly to apply an extinguishing agent.
- b. How to notify professional fire fighting personnel immediately.



- c. The agents which are recommended for different kinds of fires and how to operate the extinguishing equipment, eg. area water, water fog, CO<sub>2</sub>, DCP or chemical and mechanical foam.
- d. Chemical and mechanical foam agents leave deposits; if possible these agents should be removed by flushing thoroughly with water, no other action is required.

#### WARNING

Ansul Plus Fifty B Dry Chemical Powder should not be used except in an emergency. If used, all traces of residue shall be completely removed by spraying with PF-1 Fuel, flushing thoroughly with running water and wiping as dry as possible. The following agents are not approved as fire extinguishing agents. Inadvertent use must be reported to Engineering:

- (1) Ansul Met-L-X Dry Chemical
- (2) Chlorobromomethane (CBM)
- (3) Soda and Acid type extinguishers

- e. The availability and serviceability of extinguishing equipment during ground operations.

2-32. General procedures to be carried out when a fire is discovered.

- a. Apply proper agent to fire as soon as possible.
- b. For engine fires, follow procedures as outlined on Figure 2-7.
- c. Position yourself upwind and do not stand in flammable liquids when applying agents.
- d. Move ground support equipment away so that fire fighting equipment will not be hampered.
- e. When available agent is expended and/or the fire is out of control, evacuate the area because of the danger of explosion.

2-33. Oxygen Fires.

2-34. Oxygen can cause spontaneous ignition and explosions when it comes in contact with flammable substances. A fire aided by oxygen will burn intensely and spread rapidly. CO<sub>2</sub> or DCP (dry chemical powder) should be applied to slow the progress of these fires. However, effective extinguishing of oxygen-supplied fires generally require foam. Sources of 100 per cent oxygen in the aircraft are the bottles in the nose wheel or chine area.

2-35. Engine Fires. (See Figure 2-7.)

2-36. An engine or nacelle fire may not be indicated by the engine fire and/or overheat system. Ground personnel should be alert for this condition during engine ground operation.

2-37. Chemical Ignition Fuel (TEB) Fires.

2-38. A fire will occur when triethylborane (TEB) is exposed to air as a result of spills, line rupture or leaks. To control TEB fires, the fire fighter shall attempt to confine the fire by blanketing the burning liquid with foam or water spray.

#### WARNING

Carbon tetrachloride and halogenated hydrocarbons react with TEB and should never be used to combat fires.

#### Note

Tests have indicated that TEB will ignite when exposed to air at all temperatures to be encountered during handling.

2-39. Hot Aircraft Wheels.

2-40. When an aircraft is subject to excessive braking action, especially an aborted take-off or drag chute failure, the following procedures should be rigidly adhered to:

## FIRE FIGHTING PRECAUTIONS

**WARNING** PRECAUTIONS LISTED BELOW SHALL BE OBSERVED, IN ORDER TO AVOID SERIOUS INJURY TO INVOLVED PERSONNEL.

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1 FIGHT FIRE, WHEN POSSIBLE FROM UP-WIND SIDE.</li> <li>2 DO NOT STAND IN FLAMMABLE LIQUIDS.</li> <li>3 DO NOT PUT YOURSELF IN POSITION WHERE YOU CAN BE TRAPPED BY FIRE OR FUMES.</li> <li>4 USE CAUTION TO AVOID SLIPPING ON WET SURFACES.</li> </ol> | <ol style="list-style-type: none"> <li>5 USE DRY CHEMICAL POWDER OR CO<sub>2</sub> AGENT IF AVAILABLE.</li> <li>6 IF CO<sub>2</sub> OR OTHER APPROVED LIQUID EXTINGUISHING AGENTS ARE USED, USE EXTREME CARE THAT DIRECT BLAST OF COLD LIQUID OR GAS DOES NOT CONTACT HOT METAL SURFACES. STRESS EXPLOSIONS CAN BE CAUSED WITH RESULTANT INJURY TO PERSONNEL.</li> </ol> |
|--|--|

## CLEANING PROCEDURE

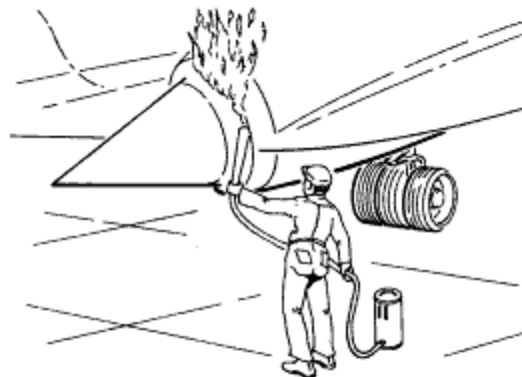
AFTER FIRES ARE EXTINGUISHED REMOVE CHEMICAL POWDER FROM AFFECTED AREAS OF AIRCRAFT AS FOLLOWS:

- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1 WIPE AFFECTED AREAS WITH CLEAN CLOTH. USE AIR BLAST TO CLEAN AREAS NOT READILY ACCESSIBLE TO CLOTH WIPING.</li> <li>2 WASH ALL AFFECTED AREAS THOROUGHLY.</li> </ol> | <ol style="list-style-type: none"> <li>3 RINSE AFFECTED AREAS WITH APPROVED ANTI-RUST SOLUTION AND RINSE WITH CLEAN WATER.</li> <li>4 THOROUGHLY CLEAN AND INSPECT ALL ENGINE PARTS IN THE AREA WHICH THE CHEMICAL AGENT HAS BEEN INTRODUCED. THIS WILL INCLUDE A THOROUGH ENGINE INSPECTION WHENEVER POWDER WAS INTRODUCED SO THAT IT PASSES THROUGH THE ENGINE.</li> </ol> |
|---|--|

## FIRE IN ENGINE AIR INLET DUCT

THESE FIRES USUALLY OCCUR DURING STARTING OR WHILE ENGINE IS RUNNING. IN CASE OF FIRE PROCEED AS FOLLOWS:

- 1 THROTTLE - ADVANCE PART WAY TO MILITARY POWER.
- NOTE**
- IF FIRE DOES NOT BLOW OUT OR PERSISTS, SHUT DOWN ENGINE AND FIGHT AS OIL FIRE.
- 2 THROTTLE - OFF.
  - 3 EMERGENCY FUEL SHUT - OFF SWITCH - OFF (GUARD UP), ALLOW 5 SECONDS FOR VALVE TO CLOSE.
  - 4 BATTERY SWITCH - OFF.
  - 5 LEAVE COCKPIT AS SOON AS POSSIBLE.
  - 6 INTRODUCE DRY CHEMICAL POWDER OR CO<sub>2</sub> AGENT INTO THE ENGINE AIR INLET DUCT.



## FIRE IN ENGINE NACELLE

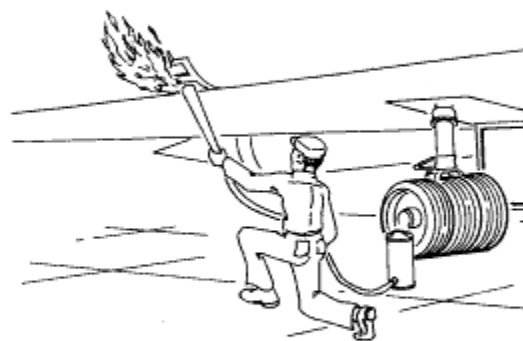
IF FIRE OCCURS WHILE ENGINE ACCESS DOORS ARE OPEN (AS DURING INITIAL ENGINE RUN), FIRE FIGHTING IS SIMPLIFIED. WHEN ENGINE ACCESS DOORS ARE CLOSED, ENTRY FOR THE EXTINGUISHING AGENT IS THROUGH THE LOWER "SUCK IN" DOORS AT THE ACCESSORY SECTION. IN CASE OF FIRE PROCEED AS FOLLOWS:

- 1 CHEMICAL IGNITION PURGE SWITCH - DUMP (SWITCH UP).

### CAUTION

ACTUATE DUMP SWITCH IMMEDIATELY TO ENSURE HYDRAULIC PRESSURE AND POWER WILL BE AVAILABLE TO DUMP THE CTS TANK. POWER WILL BE REQUIRED FOR UP TO 10 SECONDS.

- 2 THROTTLE - OFF.
- 3 EMERGENCY FUEL SHUTOFF SWITCH-OFF (GUARD UP), ALLOW 5 SECONDS FOR VALVE TO CLOSE.
- 4 BATTERY SWITCH - OFF.
- 5 LEAVE COCKPIT AS SOON AS POSSIBLE.
- 6 INTRODUCE DRY CHEMICAL POWDER OR CO<sub>2</sub> AGENT INTO ACCESS DOOR OR "SUCK IN" DOOR OPENING.
- 7 AS SOON AS PRACTICAL, OPEN ACCESS DOOR ON BOTTOM OF FUSELAGE AND CHECK FOR EVIDENCE OF UNEXTINGUISHED FIRE.

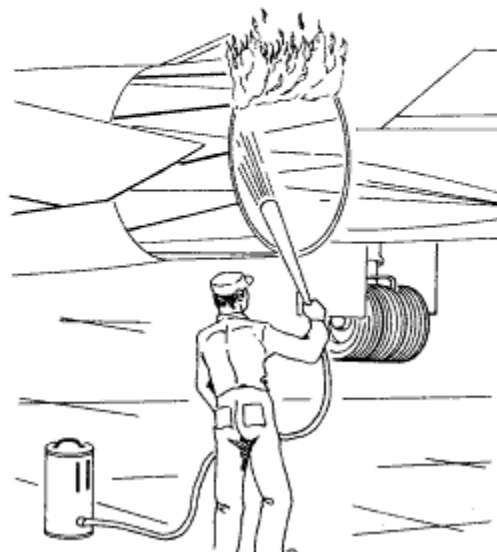


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(Rev. 8-26-71)

Figure 2-7. Engine Fires.  
(Sheet 1 of 2)

TAIL PIPE FIRES USUALLY RESULT FROM EXCESS FUEL COLLECTING IN THE AFTERBURNER SECTION AFTER SHUT-DOWN, OR DURING STARTING CYCLES. IN CASE OF FIRE (WITH GROUND START UNIT ENGAGED) PROCEED AS FOLLOWS.

- 1 THROTTLE OFF.
- 2 EMERGENCY FUEL SHUT-OFF (GUARD UP).
- 3 IF POSSIBLE MAINTAIN OPERATION UNTIL ALL EVIDENCE OF FIRE HAS DISAPPEARED. IF FIRE DOES NOT BLOW OUT OR PERSISTS DISCONTINUE START OPERATION AND FIGHT AS OIL FIRE BY APPLYING  $\text{CO}_2$  IN SHORT BURST INTO AFTERBURNER SECTION.

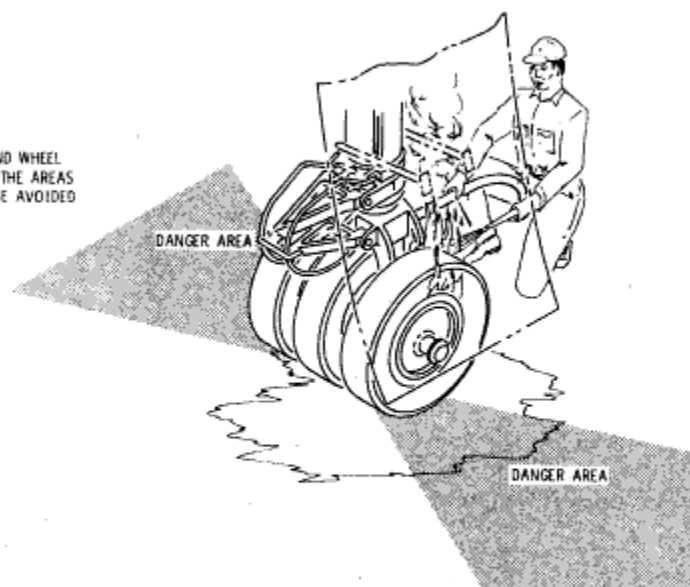


#### **WARNING**

EXCESSIVE BRAKE HEATING WEAKENS TIRE AND WHEEL STRUCTURE AND INCREASES TIRE PRESSURE. THE AREAS INBOARD AND OUTBOARD OF WHEEL SHOULD BE AVOIDED

#### **NOTE**

USE WATER, WATER FOG,  $\text{CO}_2$  OR DCP, FOR EXTINGUISHING WHEEL BRAKE FIRES.



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Figure 2-7. Engine Fires.  
(Sheet 2 of 2)

Note

If available, use a portable ground air blower to accelerate cooling.

- a. The aircraft should be towed to an isolated location, if possible, and brakes allowed to cool for a period of one hour or more.
- b. Required personnel should approach overheated wheels with extreme caution in a fore or aft direction - never in line with the axle.

2-41. Wheel Brake Fires. (See Figure 2-7.)

WARNING

Excessive brake heating tends to weaken tire and wheel structure and increase tire pressure. The area inboard and outboard of the wheel shall be avoided at all times.

- a. Apply DCP, water or water fog to brake and wheel.
- b. When removing wheels from aircraft deflate tire prior to removal.

2-42. Aircraft Walkways. (See Figure 2-8.)

2-43. A portion of the upper surface of the aircraft is suitable for walking. Clean rubber soled shoes or shoe covers (wing sox) shall be worn by all personnel performing maintenance in these areas.

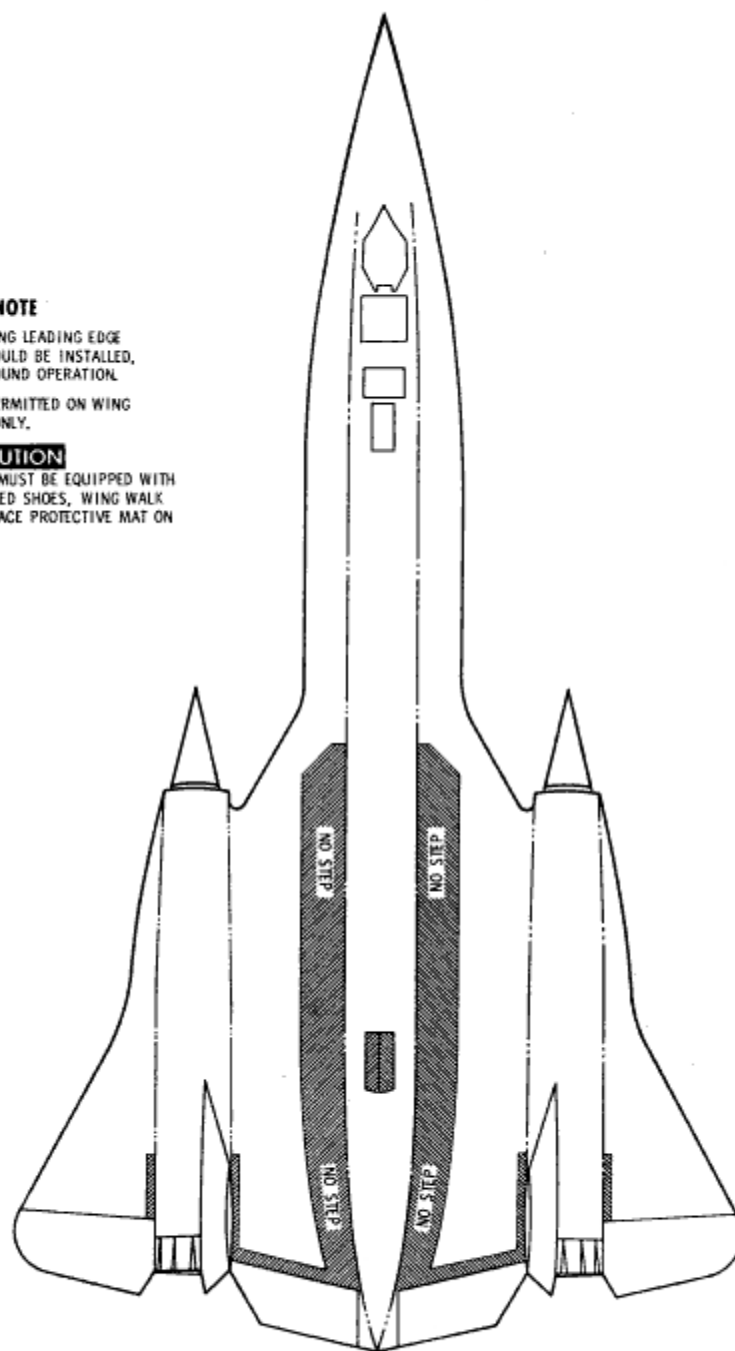
**NOTE**

L AND R WING LEADING EDGE  
COVERS SHOULD BE INSTALLED,  
DURING GROUND OPERATION.

WALKING PERMITTED ON WING  
SURFACES ONLY.

**CAUTION**

PERSONNEL MUST BE EQUIPPED WITH  
RUBBER SOLED SHOES, WING WALK  
SOX, OR PLACE PROTECTIVE MAT ON  
WALKWAY.



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Figure 2-8. Aircraft Walkways.



### CAUTION

Scratches and dents reduce structural strength and impair aircraft performance. Damage caused by careless walking or handling of tools can require extensive repairs.

2-44. Foreign Object Damage.

2-45. Foreign object damage is an ever present hazard to the operation of gas turbine engines. It is the responsibility of all maintenance personnel to conscientiously adhere to and follow preventive procedures and policies to eliminate ingestion of foreign objects by gas turbine engines. Several areas of concern are parking and storage areas, maintenance areas and procedures, engine installation and engine ground operation. Frequent and periodic inspection of engine nacelles, inlet ducts and storage areas is recommended. When required, careful cleaning of areas should be accomplished. All maintenance personnel must exercise extreme care while performing maintenance procedures in and around the aircraft to prevent foreign object damage to the two turbojet engines. The greater size of the engines creates greater suction pressures and much larger suction areas. These higher suction pressures enable the engines to pull objects from greater distances into the intake ducts or the engine

nacelle areas and on into the engines' compressor sections. Objects may be picked up from the deck areas or from other areas which are directly or indirectly open to the engine nacelle and inlet duct. Therefore, it is mandatory that personnel performing maintenance in and around the aircraft account for all tools, hardware and components after all maintenance procedures and operations.

2-46. Duct plugs and dust excluders are required to reduce foreign object accumulation. (See Figure 2-9.)

2-47. Parking and storage areas should be inspected for foreign objects. Such material shall be removed with brooms, sweepers or other suitable equipment.

2-48. General maintenance and structural repair procedures can contribute foreign materials for ingestion by gas turbine engines. The following procedures are designed to reduce these materials:

- a. Every effort should be made to keep areas as clean as possible to minimize possible foreign object damage to engines.
- b. All filings, metal shavings, pulled rivet stems, and debris must be removed from the areas and aircraft structure during and immediately after completion of work. The area should be cleaned of all spilled fluids.

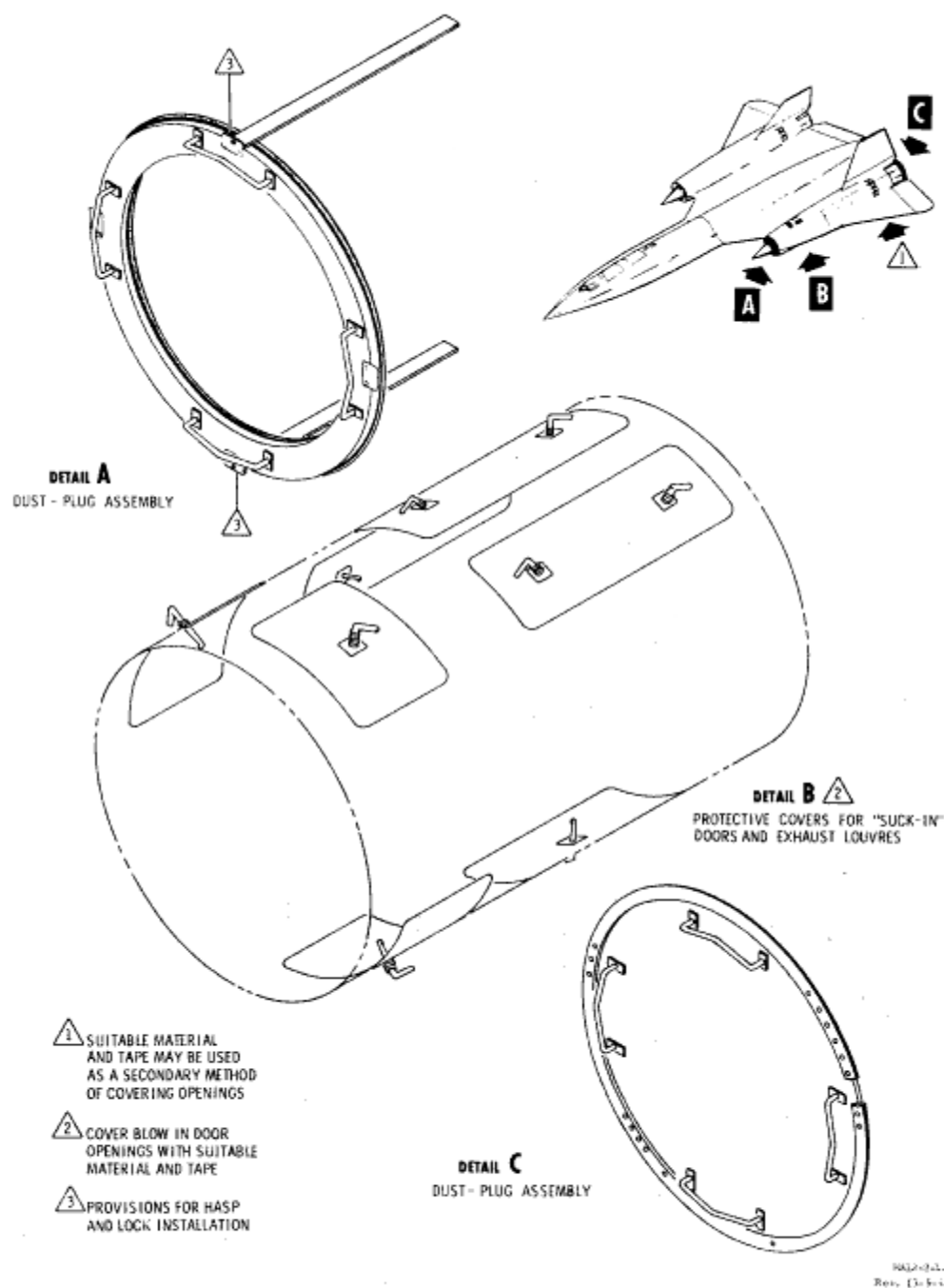


Figure 2-9. Duct Plugs and Dust Excluders.

- c. All hardware items and tools should be accounted for during and after work completion.
- d. Damaged items should be removed from the area immediately after their removal from the aircraft.
- e. Items inadvertently dropped must be found immediately after being dropped.
- f. All areas must be inspected for cleanliness prior to closeout with tape, panels or doors.
- g. Ensure that close-out panels and doors are properly installed and enclose the designated area. Mismatching of panels, cracks, and poor workmanship defeat the purpose of the panels and doors.

2-49. Health Hazards.

2-50. Liquid Nitrogen.

2-51. Extreme care must be exercised while servicing systems that require liquid nitrogen to prevent personnel injury. Protective gloves, which may be removed quickly, should be worn at all times while handling LN<sub>2</sub>. Personnel doing actual servicing should wear the gloves, rubber apron and a full face shield, as direct skin contact can result in extremely painful sores, which resemble burns. Also, symptoms of hypoxia can occur from prolonged contact with escaping GN<sub>2</sub> in confined areas.

- b. Face shield which will provide full face, neck and top of the head protection from frontal exposure.
- c. Safety glass which will be worn under the face shield as an added precaution.
- d. A slicker type raincoat for body protection. An apron is not considered satisfactory.

2-56. The above protective equipment will provide the necessary time delay after a spill or splash to allow personnel to get away from the spill area.

#### WARNING

It is extremely important that barehanded work be prohibited. Personnel protective equipment must be considered as secondary equipment only. Adequate facilities, procedures, and authorized handlers provide primary protection.

2-57. If a fire results from a spill in an enclosed area there is a possibility of a reduction in oxygen content in the air, and the fumes may be toxic; therefore, a suitable respirator must be used by personnel entering the area. Scott air paks respirators or air line respirators must be worn by personnel entering the area.

2-52. Triethylborane (TEB).

2-53. TEB will cause serious thermal burns on contact with the skin.

The burned area may provide a highly absorbent area for this compound; therefore, skin contact must be avoided. The inhalation of these compounds is extremely unlikely due to their pyrophoric characteristics; however, the fumes are toxic.

2-54. Personnel protective equipment must be worn at all times while doing any transfer, filling, installation, removal or maintenance work with pyrophoric contaminated equipment. All handling and transfer operations must be controlled to prevent leakage and personnel exposure to liquid, gas and fires. All equipment must be thoroughly decontaminated by the pyrophoric handlers before leaving their custody and a control tag system shall be used showing the status of all equipment where residue could be trapped. These liquids very often lay behind a blanket of combustion products in unpurged open lines. Proper purging of all equipment and lines is a must. Overflow or vent lines must be led off to a safe disposal area.

2-55. When handling TEB or units involving this material the following protective equipment or equivalent equipment must be worn at all times:

- a. Leather gloves which will give maximum protection and can be thrown off quickly.

2-58. Standard personnel safety showers or any other source of reasonably clean water will be used to flush burning fuel from a person. Prevent contamination of the burn area if at all possible. If TEB contacts the eyes, flush immediately with large quantities of water for 15 to 20 minutes or until medical personnel arrive.

2-59. Protective Covers. (See Figure 2-10.)

2-60. Protective covers are provided to protect external surfaces and the internal components of the aircraft during adverse weather conditions.

# **SHOP USAGE:**

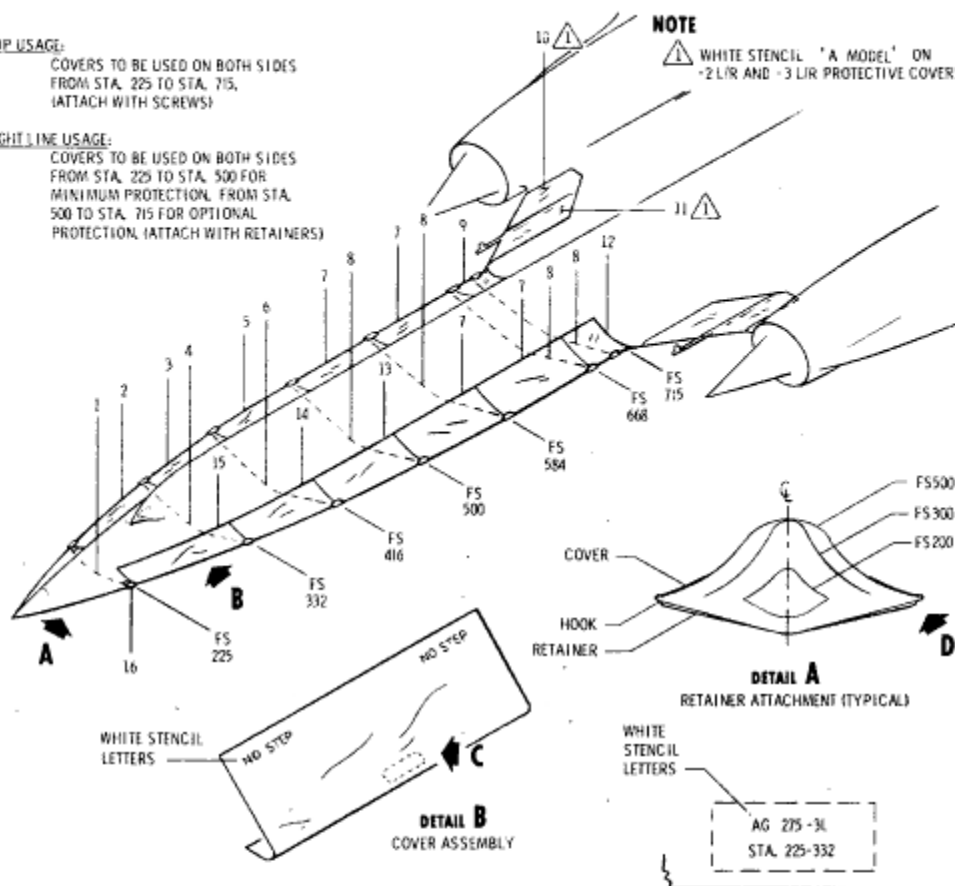
COVERS TO BE USED ON BOTH SIDES FROM STA. 225 TO STA. 715, (ATTACH WITH SCREWS)

# **FLIGHT LINE USAGE:**

COVERS TO BE USED ON BOTH SIDES FROM STA. 225 TO STA. 500 FOR MINIMUM PROTECTION, FROM STA. 500 TO STA. 715 FOR OPTIONAL PROTECTION, (ATTACH WITH RETAINERS)

# **NOTE**

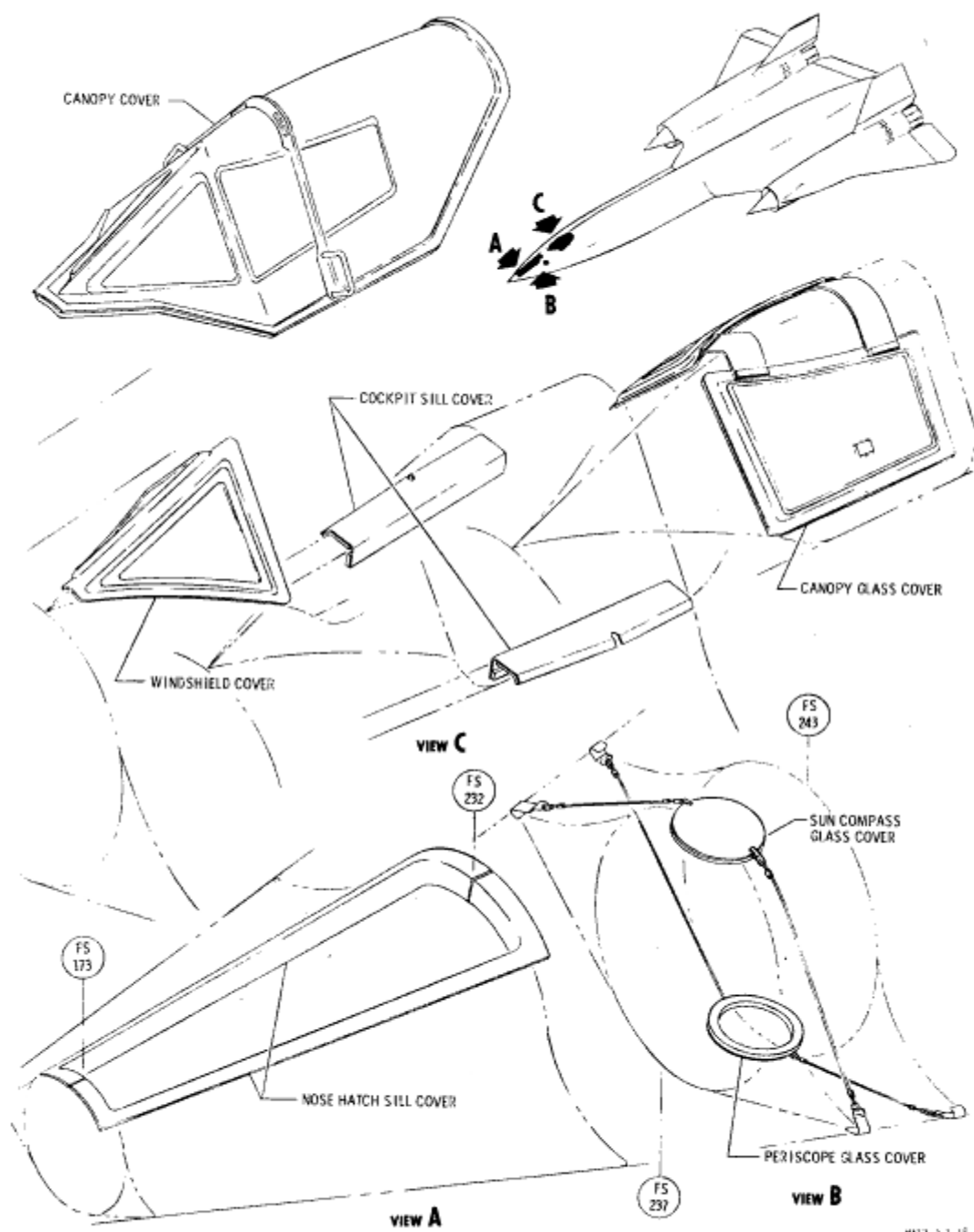
WHITE STENCIL "A MODEL" ON -2 L/R AND -3 L/R PROTECTIVE COVERS



ITEM	DESCRIPTIONS	AG-275	AG-280
1	RETAINER	-8	
2	COVER (STA. 225-332)	-3R	
3	COVER (STA. 332-416)	-4R	
4	RETAINER	-9	
5	COVER (STA. 416-500)	-5R	
6	RETAINER	-10	
7	COVER (STA. 500-668)	-6	
8	RETAINER	-11	
9	COVER (STA. 668-715)	-7R	
10	COVER (WING LEADING EDGE)		-3 L/R
11	COVER (WING LEADING EDGE)		-2 L/R
12	COVER (STA. 668-715)	-7L	
13	COVER (STA. 416-500)	-5L	
14	COVER (STA. 332-416)	-4L	
15	COVER (STA. 225-332)	-3L	
16	HOOK	-13	

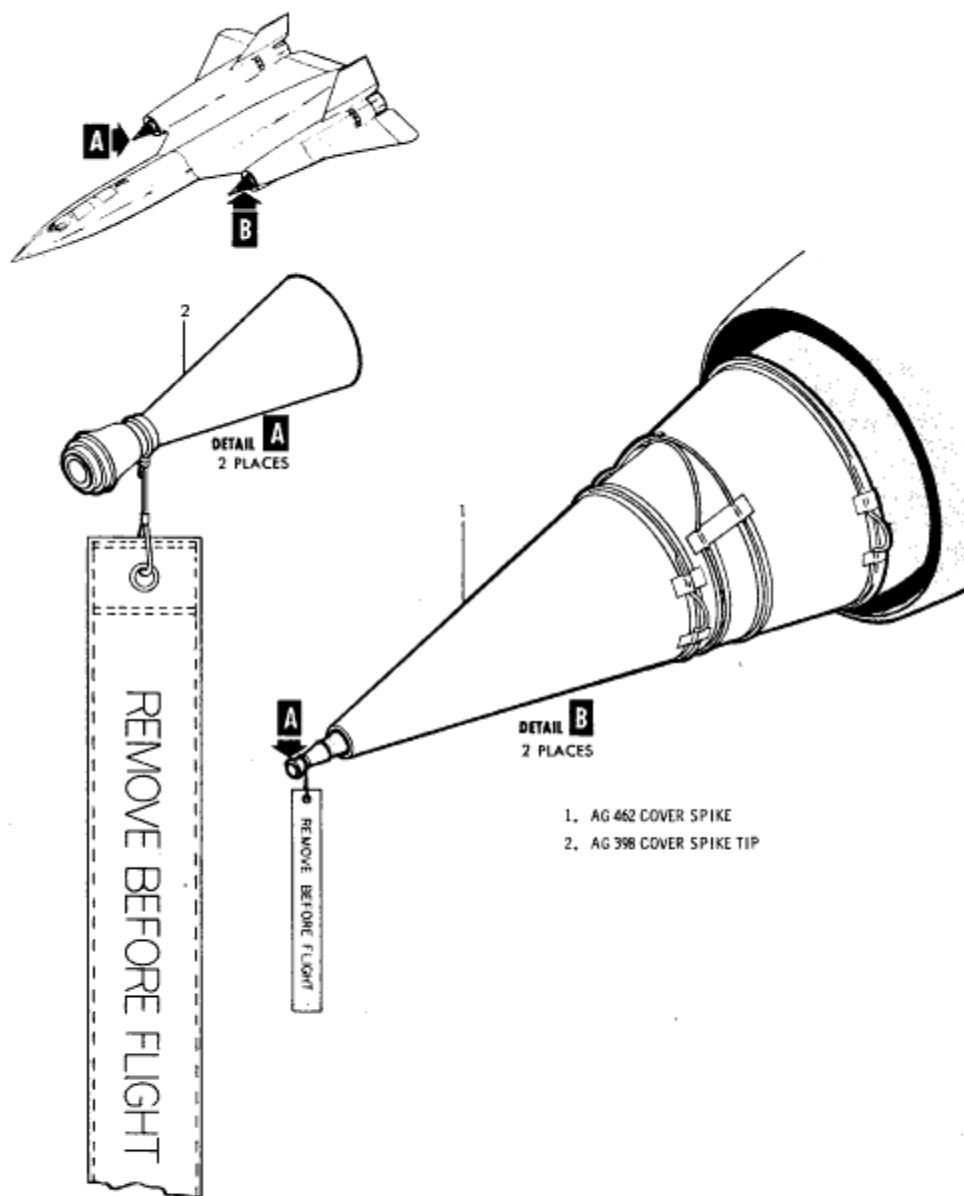
Figure 2-10. Protective Covers.  
(Sheet 1 of 5)





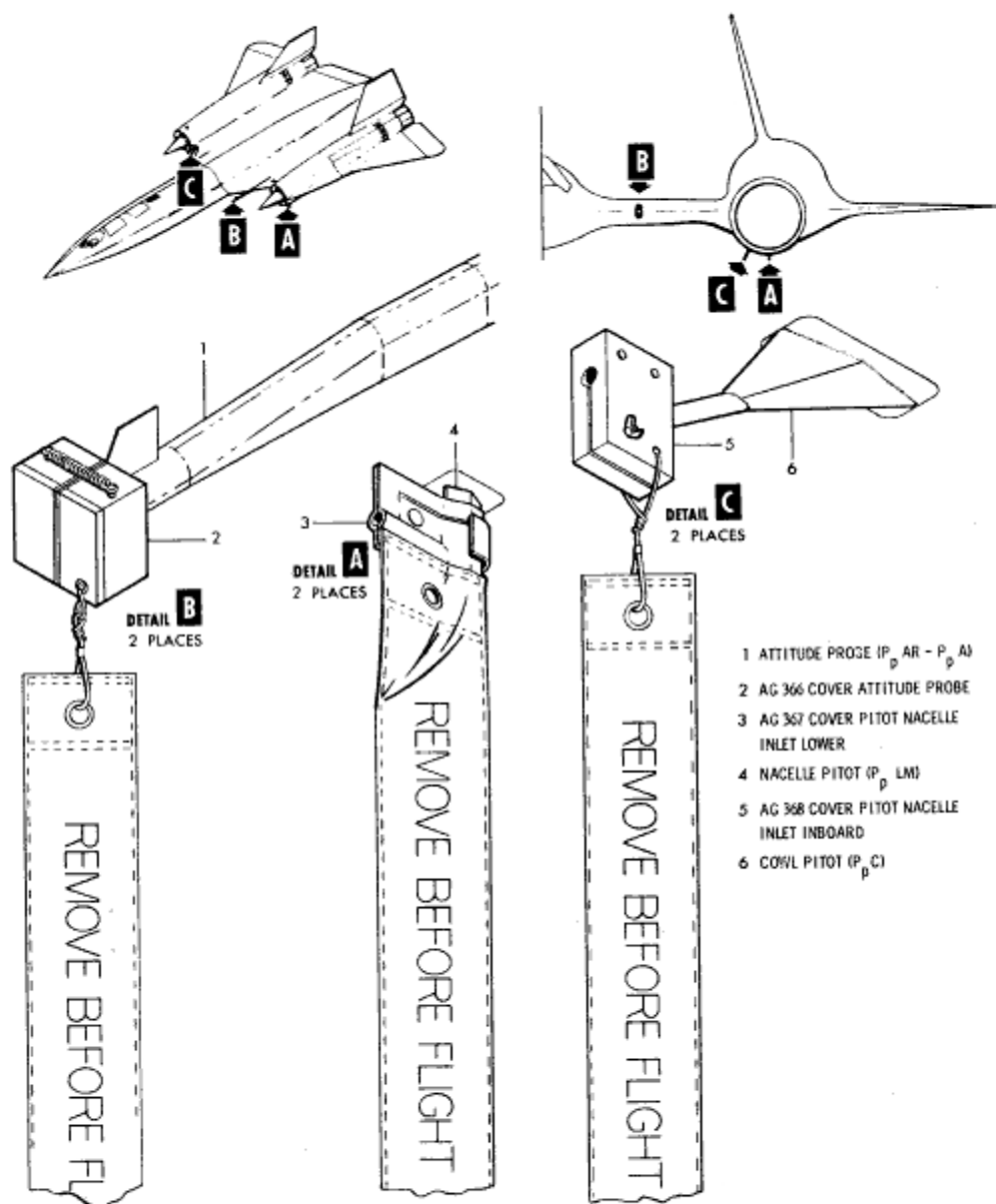
HALZ-2-1-10

Figure 2-10. Protective Covers.  
(Sheet 2 of 5)



96932-0-1-17(2)

Figure 2-10. Protective Covers.  
(Sheet 3 of 5)



30000-001-0101

Figure 2-10. Protective Covers.  
(Sheet 4 of 5)

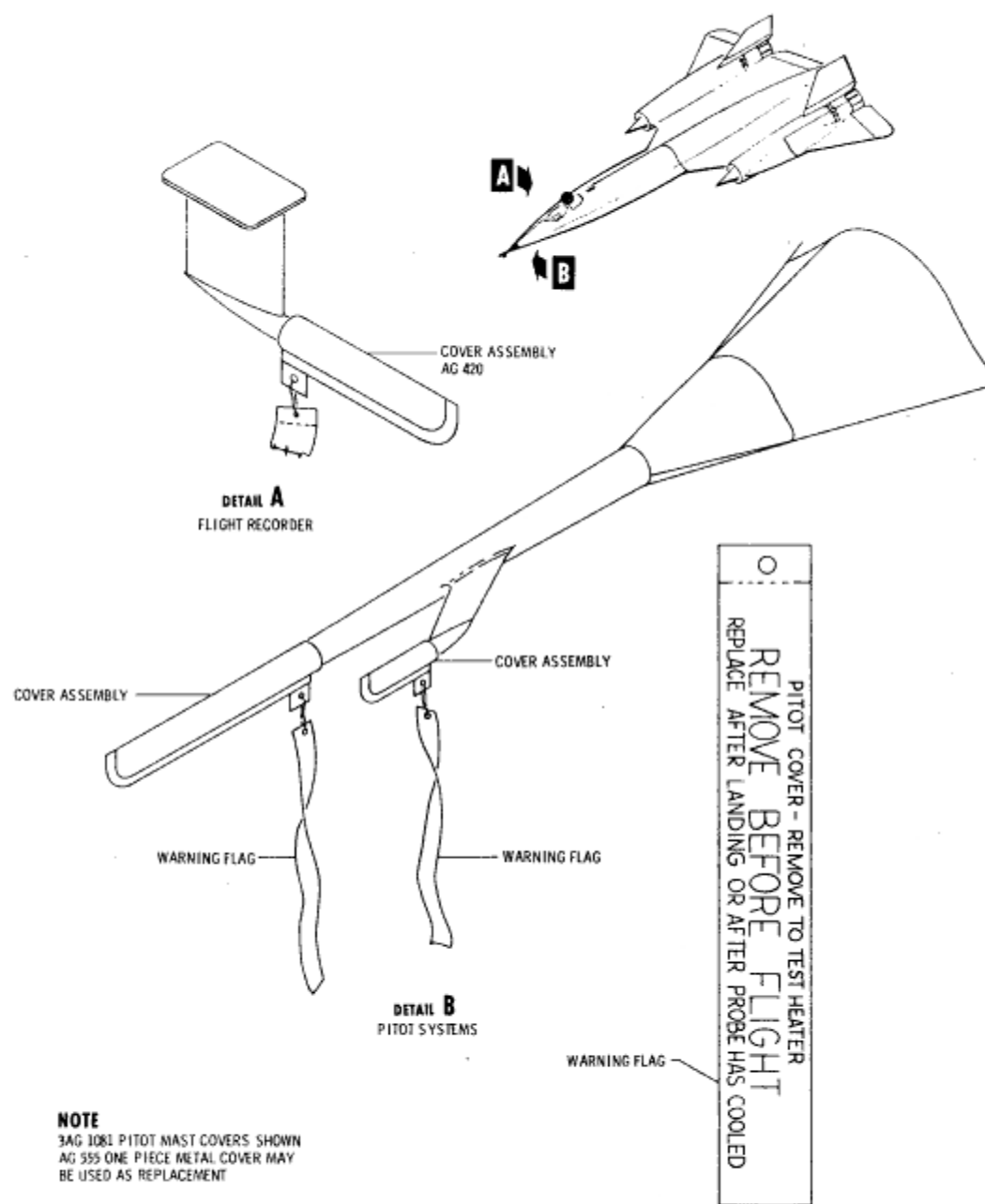


Figure 2-10. Protective Covers.  
(Sheet 5 of 5.)

SECTION III  
GROUND HANDLING

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SECTION III  
GROUND HANDLING

LIST OF ILLUSTRATIONS

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3-1. GROUND HANDLING.

3-2. This section provides the proper handling procedures, using approved equipment that is required to properly handle the aircraft during routine maintenance procedures. All safety precautions which provide for safe and efficient handling of the aircraft shall be strictly adhered to.

3-3. Center of Gravity Control.

3-4. Accurate control of the CG of the aircraft during ground handling is required to prevent tipping the aircraft upon its tail. Some of the problems encountered which will move the aircraft CG aft are as follows:

- a. Maintenance personnel working aft of the main gear on top of the wing.
- b. Parking the aircraft on a sloped ramp.
- c. Sudden release of sticking shock struts.
- d. Snow on the fuselage, nacelle and wing surfaces.
- e. Uneven distribution of fuel in the tanks.

3-5. In order to safely perform all maintenance functions requiring removal of aircraft equipment and/or major removable components, in addition to towing or jacking, a specified ground handling gross weight and CG is required.

3-6. When major removable components and/or equipment are to be removed from an aircraft fully fueled, this weight and CG condition will allow the maximum removal of such components and equipment without damage to the aircraft during ground handling.

3-7. When major removable components and/or equipment are to be removed from an aircraft at its zero fuel weight, this weight and CG condition will allow the maximum removal of such components and equipment without damage to the aircraft during ground handling.

#### CAUTION

If the aircraft is partially fueled there shall be more fuel weight forward of the landing gear than aft of the landing gear. The aircraft can then be handled with any configuration of component/equipment removal.

#### Note

During engine ground operation, transfer fuel to the number one tank as required to maintain the fuel weight forward of the landing gear.



3-8. Aircraft Anti-Tipping Prop. (See Figure 3-1.)

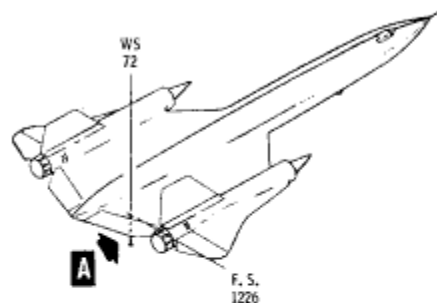
3-9. The anti-tipping prop is a safety device used to ensure aircraft stability when equipment is removed forward of the main gear location or when maintenance is being performed on the wing section of the aircraft.

#### CAUTION

The anti-tipping prop must be used at all times when the aircraft is resting on its landing gear in a normal ground attitude.

The anti-tipping prop shall not be used under the following conditions:

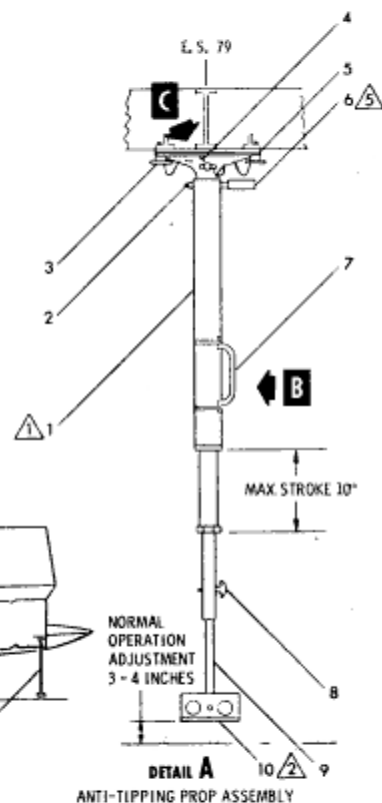
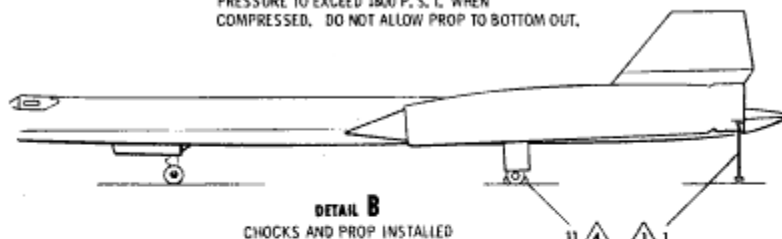
- a. While the aircraft is resting on jacks or being raised or lowered by jacks.
- b. As a device to augment or replace the normal jacking equipment.
- c. When landing gear maintenance is performed which will change its geometry, unless it can be determined that such changes will not overload the prop assembly eg. inflating or deflating gear struts or tires.



- 1 ANTI-TIPPING PROP
- 2 FILLER VALVE
- 3 HAND SCREW (2 REQ'D)
- 4 UPPER BASE
- 5 RUBBER PAD
- 6 0-2000 PSI GAGE (NITROGEN)
- 7 HANDLE
- 8 PIP PIN
- 9 ROD END
- 10 LOWER BASE
- 11 CHOCKS (M, L, G.)
- 12 STRUCTURAL SCREWS

#### NOTE

- 1 THIS PROP IS A SAFETY DEVICE TO PREVENT TIPPING DURING SERVICE OR MAINTENANCE OPERATIONS. TO BE USED AT ALL TIMES WHEN AIRCRAFT IS IN A NORMAL GROUND ATTITUDE. PROP MAY BE USED ON EITHER SIDE ON SHIP.
- 2 WITH ROD END SCREWED FULLY IN, ADJUST LENGTH OF PROP TO ENGAGE PIP PIN HOLE WITH LOWER BASE. FOR NORMAL OPERATION ADJUST BASE 3 - 4 INCHES CLEAR OF GROUND.
- 3 REMOVE 2 FLUSH SCREWS FROM AIRCRAFT AND ATTACH PROP WITH HAND SCREWS. RETAIN FLUSH SCREWS IN KEEPER HOLES ON UPPER BASE. REPLACE FLUSH SCREWS AFTER REMOVING PROP.
- 4 CHOCKS MUST BE USED WHEN PROP IS ATTACHED.
- 5 BE SURE NITROGEN PRESSURE IS MAINTAINED AT 700 P. S. I.  $\pm$  50 P. S. I. UNLOADED. DO NOT ALLOW PRESSURE TO EXCEED 1800 P. S. I. WHEN COMPRESSED. DO NOT ALLOW PROP TO BOTTOM OUT.



#### CAUTION

- PROP IS NOT TO BE USED WHEN AIRCRAFT IS BEING JACKED UP OR DOWN.
- PROP IS NOT TO REPLACE OR AUGMENT AIRCRAFT JACKING SYSTEM.
- PROP IS NOT TO BE USED DURING MAINTENANCE OF LANDING GEAR.
- PROP MAY BE USED DURING INFLATING OR DEFLATING STRUTS OR TIRES, IF SUCH CHANGE WOULD NOT OVERLOAD PROP.

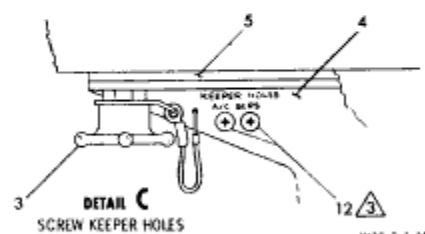


Figure 3-1. Anti-Tip Prop.

3-10. Cockpit Entry.

3-11. Normal entrance into the pilot's cockpit is made by use of an approved external stand after the canopy is open. (See Figure 3-2.)

Note

Refer to Section II for emergency access to the cockpit.

CAUTION

Exercise extreme caution when positioning the external stands to prevent damage to the chine sections.

3-12. Aircraft Towing.

3-13. Limitations.

CAUTION

All towing from the nose gear shall be done by means of the nose gear tow bar AG-64.

- a. The nose gear scissors shall be disconnected prior to any movement of the aircraft by towing.
- b. The nose gear towing angle shall not exceed  $\pm 45$  degrees from the aircraft longitudinal centerline. Pushing or pulling within this angle up to the maximum allowable gross weight is permissible on hard surface ramps ONLY and for short distances ONLY eg. moving aircraft in and out of the hanger.

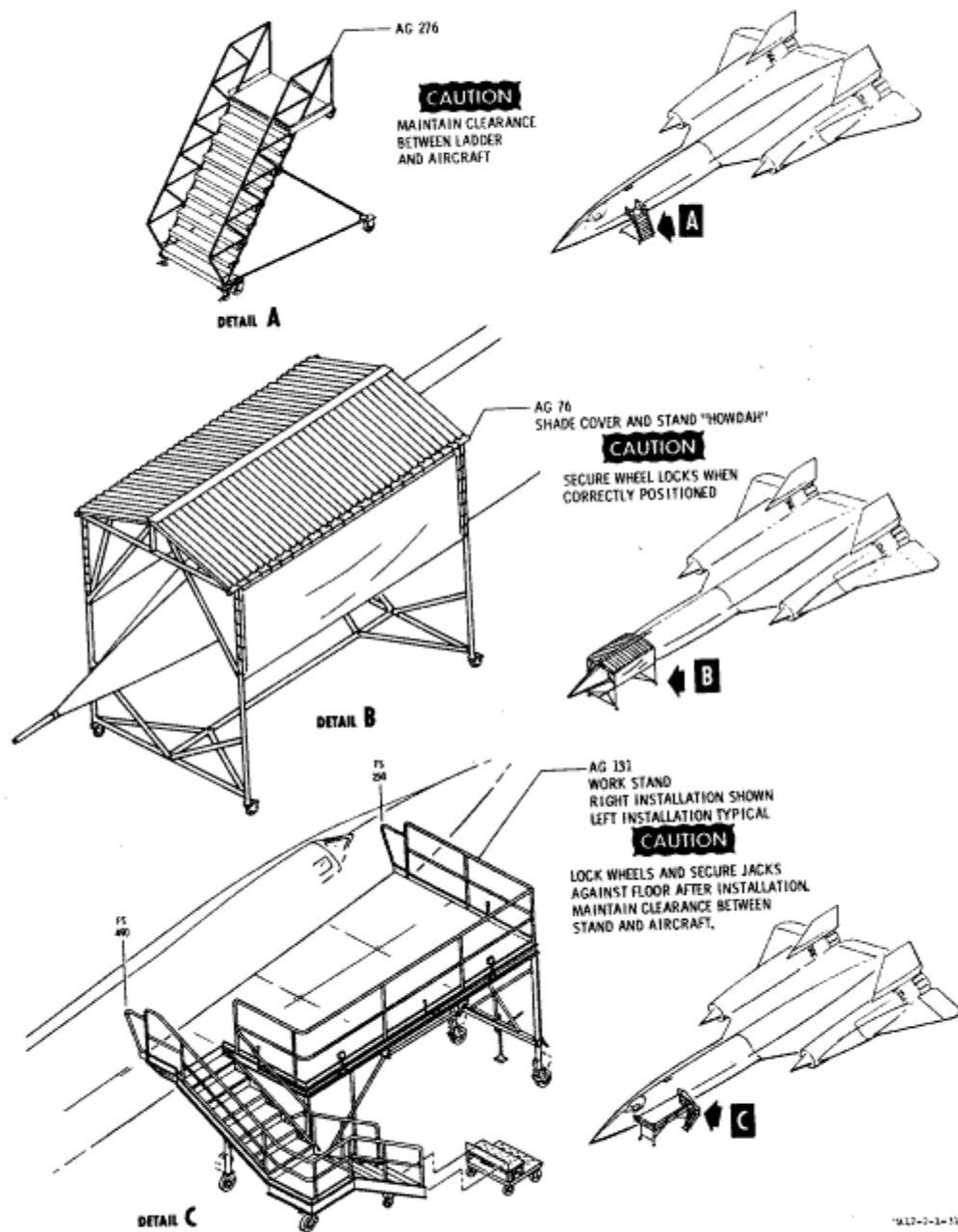


Figure 3-2. Cockpit Entrance.

### CAUTION

Gross weight must be less than 60,000 pounds when towing long distances.

- c. In an emergency it is permissible to pull or push on the nose gear tow bar when it is 90 degrees to the aircraft longitudinal centerline with one set of main gear wheels set, causing rotation of the aircraft about this pivoting main gear. Such movement is allowed ONLY on HARD SURFACES - USE EXTREME CAUTION!
- d. The nose gear tow bar has built-in shear screws. If a towing condition arises whereby the shear screws fail, then the aircraft shall be towed from the main gears, using the applicable equipment and following the procedures under "Main Gear Towing."
- e. Maximum towing speed shall not exceed ten (10) miles per hour.
- f. Sufficient personnel shall be available to ensure that adequate clearance is maintained between other aircraft building, and vehicles and the aircraft while it is being moved.
- g. No aircraft braking shall be used during the towing operation. The only brake pressure available would be from the brake accumulator and it may be discharged.

3-14. Nose Gear Towing Procedure. (See Figure 3-3.)

- a. Disconnect the nose gear scissors and secure the bolt and nut to the upper link.
- b. Support the upper scissors link by a suitable strap from the nose gear safety lock pin. The lower scissors link is supported by the static ground strap bracket.
- c. Attach the AG-64 Tow Bar to the nose gear.
- d. The aircraft is now ready for towing provided all leads, lines, etc. are released.

CAUTION

Observe all limitations listed under paragraph 3-13.

3-15. Main Gear Towing Procedures. (See Figure 3-4.)

3-16. When towing forward or turning from the main gear wheels, under severe conditions, the following procedures shall be used:

- a. Attach the strut clamp assemblies of AG-120, placing the one inch retaining bolts through the appropriate holes of AG-148 Tow Strap into the top pivot shaft of the upper scissors link. Finger tight is sufficient for the bolts.
- b. Attach approved cables and clevises between the tow strap and the towing vehicle(s).

Note

There are no provisions for a parking brake.

Prior to aircraft movement the brake accumulator charge may be checked by viewing the pressure gage located in the right main wheel well.

- h. The aircraft is not designed for stopping reaction forces while moving in the aft direction. Therefore, wheel chocks shall not be dropped behind the main wheels and used as dynamic stopping devices.
- i. There are no restrictions on using chocks as dynamic stopping devices while the aircraft is being towed forward.
- j. One person shall be stationed at each main wheel during the towing operation. Each shall be provided with an approved chock to be used as necessary consistent with items h and i.
- k. When the strut clamp assembly of AG-120 and Tow Strap AG-148 are used during main gear towing, there are no gross weight or terrain limitations on towing the aircraft.
- l. All gear struts shall be pressurized for towing. The nose gear strut shall be adjusted, if necessary, so that a maximum of 12 inches of piston is exposed.

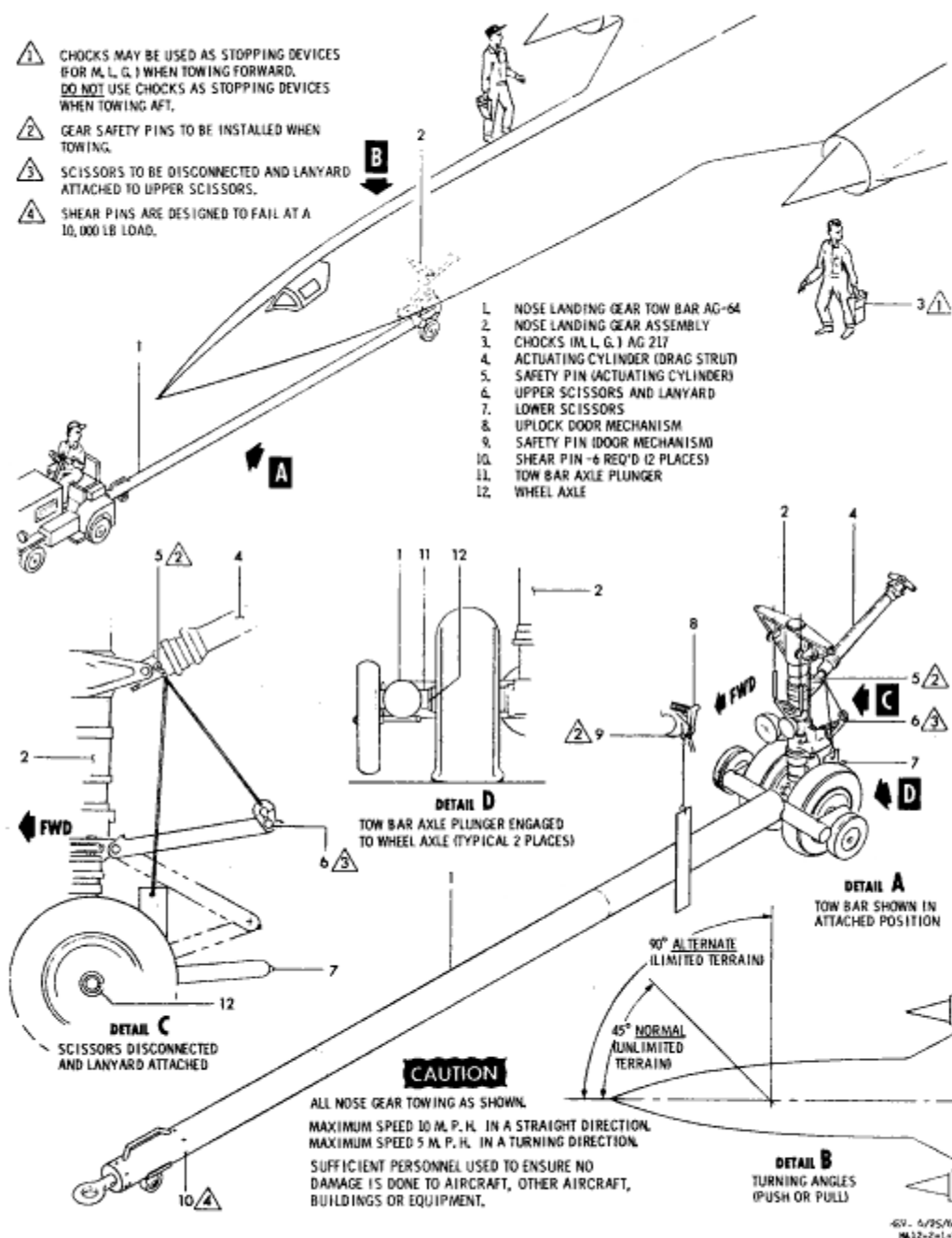


Figure 3-3. Nose Gear Towing.



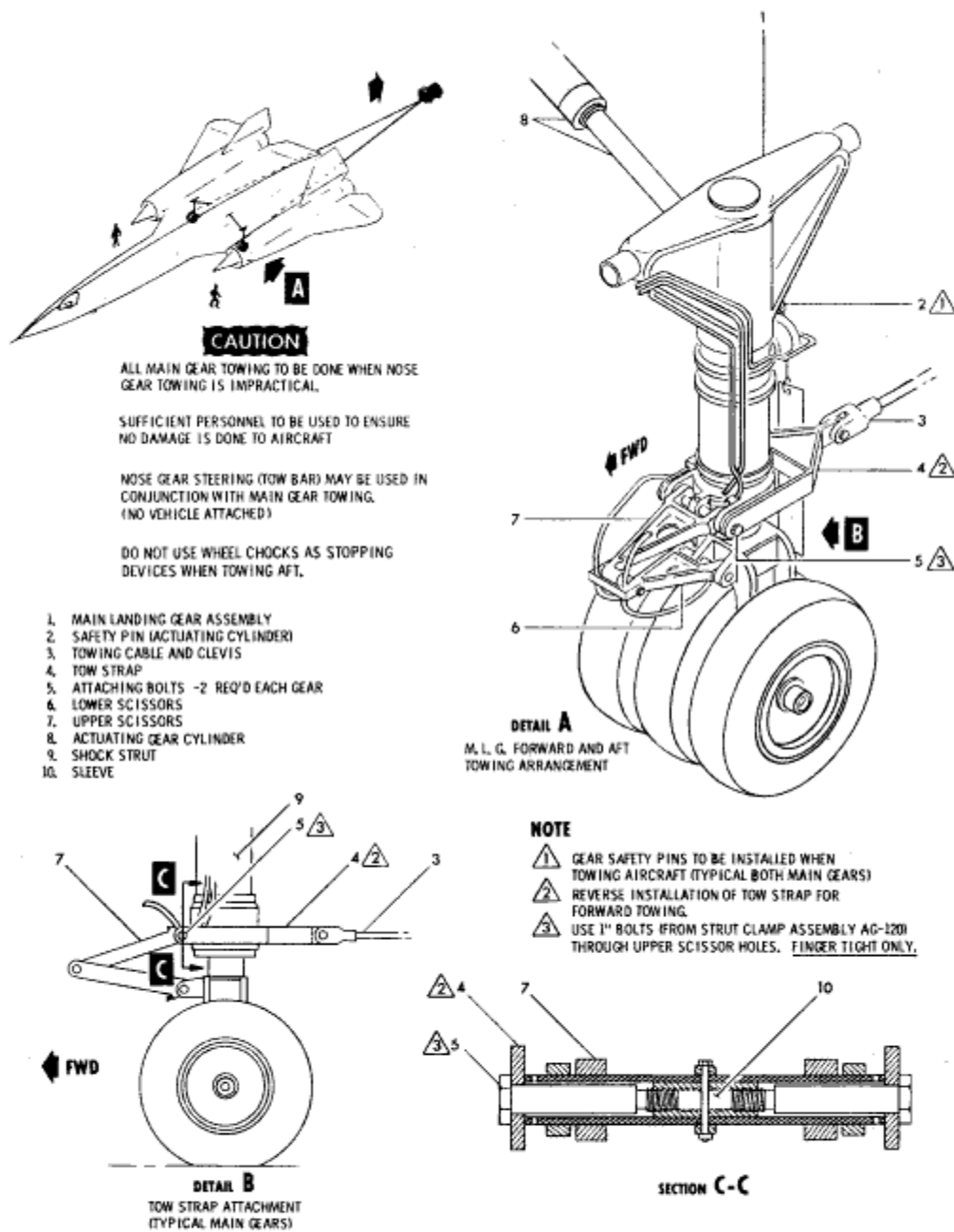


Figure 3-4. Main Gear Towing.

c. If necessary, the nose gear tow bar, AG-64 or TAG-64, may be attached and used for steering as required. Disconnect the nose gear scissors before towing.

d. Pickup the load with the tractor(s) as smoothly as possible in order to keep the dynamic loads at a minimum.

#### CAUTION

Observe all limitations listed under paragraph 3-13.

3-17. When towing aft from the main gear under severe conditions the following procedures shall be used:

- a. Attach Tow Strap AG-148 onto the main gear using the one inch bolts from AG-120 Clamp.
- b. Attach approved cables and clevises between the towing vehicle(s) and the tie-down lug on Tow Strap AG-148.
- c. Both main gear may be pulled on from a single tractor positioned symmetrically behind the aircraft about 70 feet from the main gear location. Two tractors may also be used, one per gear, pulling straight aft.

d. If necessary, the nose gear tow bar, AG-64 or TAG-64, may be attached and used for steering as required. Disconnect the nose gear scissors prior to towing.

e. Pickup load with the tractor(s) as smoothly as possible in order to keep the dynamic loads at a minimum.

#### CAUTION

Observe all limitations listed under paragraph 3-13.

3-18. After towing operation, install approved wheel chocks forward and aft of the main gear wheels. Reconnect the nose gear scissors and install bolt and nut, finger tight is sufficient, and secure with a safety pin.

#### Note

It may be necessary to move the tow bar by hand to align the scissors links.

#### 3-19. Parking Procedure.

- a. Install a ground safety lockpin in each landing gear point.
- b. Install safety pins in both seat "D" rings and canopy jettison handles. (See Section II)
- c. Place chocks fore and aft of each main gear wheel.

- d. Install all protective covers. (Refer to Section II.)
- e. Statically ground the aircraft at the nose gear point.
- f. Install anti-tipping prop.

3-20. Aircraft Mooring and Run-Up Tie-Down Provisions. (See Figure 3-5.)

3-21. Hoisting Provisions After Wheels Up Landing. (See Figure 3-6.)

3-22. Prior to installation of hoisting equipment the cockpit seat and rail assembly will require removing.

#### WARNING

Deactivate all ballistics by disconnecting lines  
or sever all lines with shears.

3-23. Aircraft Jacking Procedure.

3-24. Limitations - Jacking.

- a. A maximum gross weight of 117,000 pounds shall be adhered to when jacking any or all landing gear for purposes of changing a tire, wheel or brake assembly. All wing panels and latches shall be secured and the nacelle closed and secured.

#### CAUTION

There shall be no jacks used on the fuselage  
or wing jack points at this gross weight.

(117,000 lbs.)

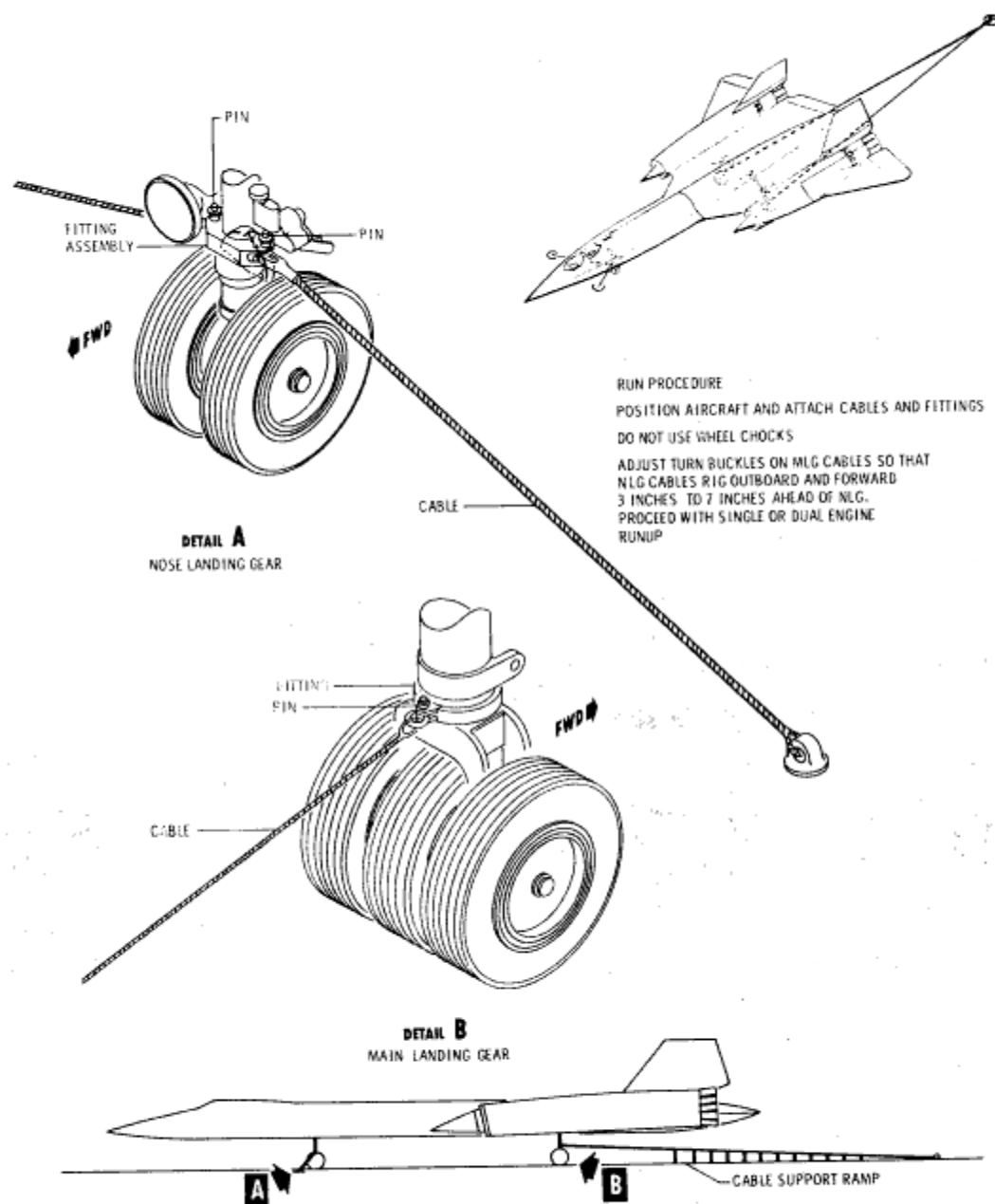


Figure 3-5. Aircraft Run-up Tie-Down.

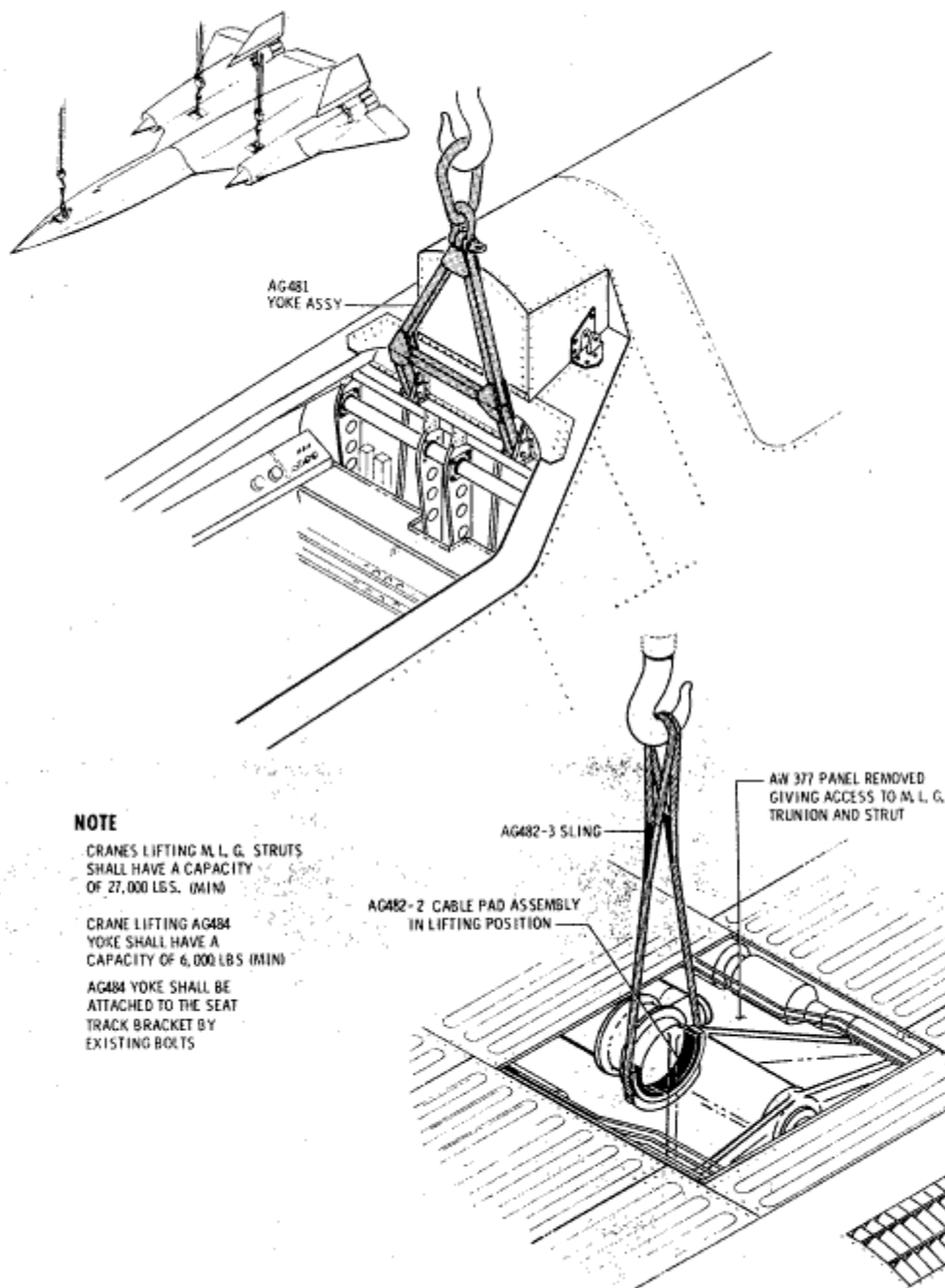


Figure 3-6. Hoisting Aircraft.

b. A maximum gross weight of 68,000 pounds shall be adhered to when jacking the aircraft using wing and/or fuselage jacks. The nacelle and wing shall be closed and properly secured.

c. The maximum gross weight that shall be adhered to when jacking the aircraft using wing and/or fuselage jacks when either or both nacelles and wings are open shall be the zero fuel weight of the aircraft.

3-25. Structural Limitations.

a. Inboard Wing Panels - The removal of inboard wing panels shall require aircraft gross weight to be at the zero fuel weight or less and that all fuselage, wing jack and contour boards are in position and adjusted prior to removal of any inboard wing panel.

b. Tires - If the aircraft is to remain idle for a period exceeding three days, all wheels shall be rotated one-third at the end of each 48 hour period so as to change complete ground contact area of the casings. As an alternate, the aircraft may be jacked up at a height sufficient to relieve casing load.

3-26. Fuselage and Wing Jacking Procedure. (See Figure 3-7.)

a. There are five jack pads, three primary and two secondary, which require attachment to the aircraft.





- ▲ PRIMARY JACK POINTS
- ▲ SECONDARY JACK POINTS (STABILIZATION ONLY)
- ▲ SPACER USED ONLY WITH NACELLE OPEN
- ▲ HEX HEAD BOLT, 2 PLACES, COAT WITH ELECTROFILM NO. 221 BEFORE INSTALLING

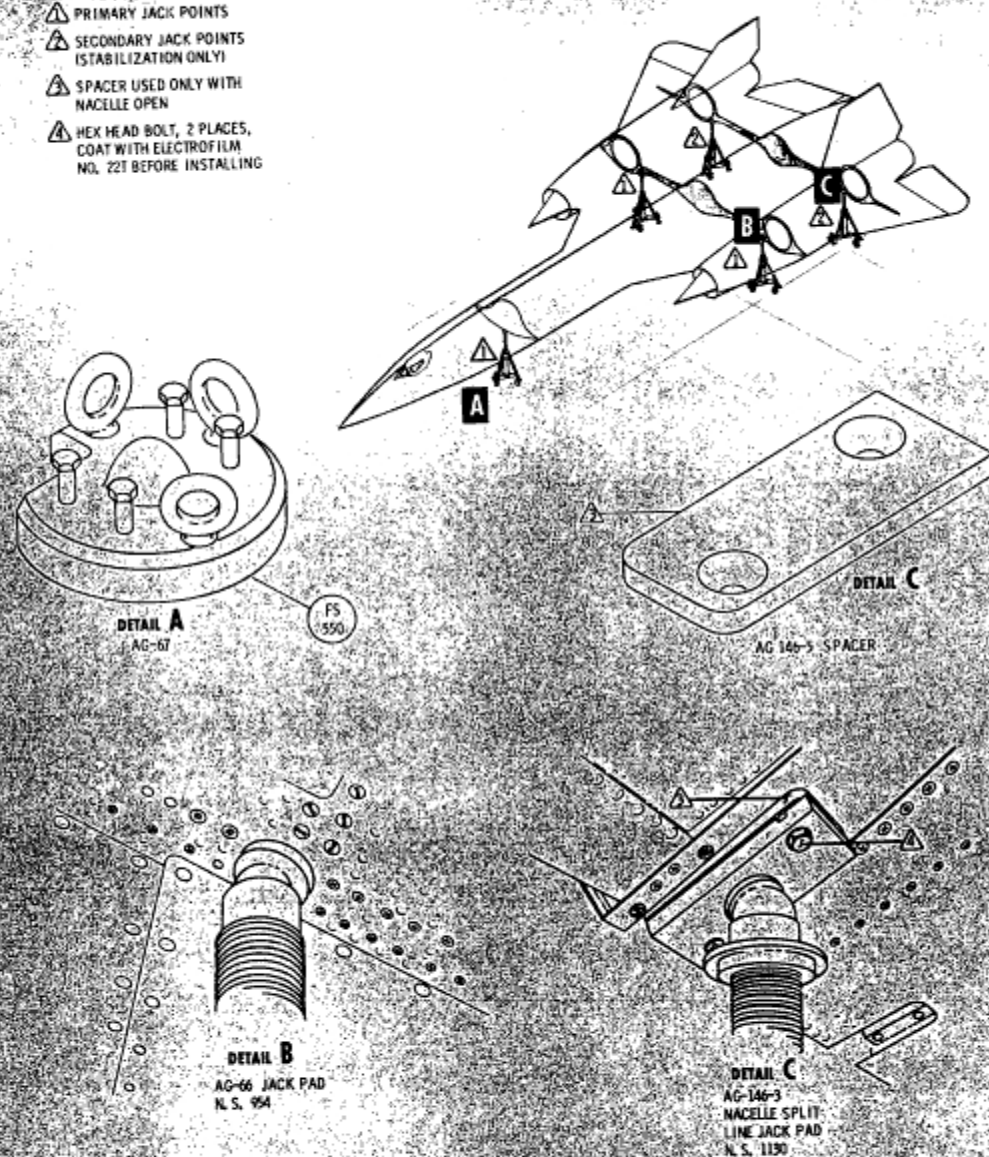


Figure 3-7. Fuselage and Wing Jacking.  
(Sheet 2 of 2)

- b. Position all five tripod jacks under their respective jack pad location. Operate the forward fuselage, left and right wing jacks (primary) so that the aircraft is raised smoothly and uniformly until all aircraft weight is supported by these three jacks.
- c. Extend both secondary jacks until their wheel springs are compressed and all jack feet rest securely on the floor. Extreme care must be exercised so that these jacks are not relieving the primary jack loads. The function of both secondary jacks is that of support only.

#### CAUTION

If work is contemplated within engine nacelles, it will be necessary to raise the outer nacelle and wing half prior to installation of the secondary jacks.

If it is decided to open the nacelle and wing half while the aircraft is on jacks, it is permissible to temporarily remove both secondary wing jacks and pads. However, install Spacer AG-146-4 under AG-146-3 Jack Pad Base when replacing the jacks.

3-27. Contour Board Installation.

- a. Position contour stand under each wing, spanning the designated beam stations along wing station 72. Raise the contour boards until they are firmly in place and secure in this position.

CAUTION

Shim jack feet as required to ensure side clearance between the jack screw and socket collar of the contour board.

3-28. Contour Boards, Jacks and Jack Pads Removal.

- 3-29. All contour boards, jacks and pads shall be removed in the following order. All inboard wing panels shall be in place before removing fuselage or wing jacks.

- a. All six contour boards shall be removed first.
- b. Left and right secondary jacks shall be removed after removal of all contour boards.
- c. All three primary jacks shall be smoothly and uniformly lowered until all aircraft weight rests entirely on the landing gear.
- d. All jack pads shall be removed and the areas cleared of all equipment.



3-30. **Jacking Procedure - Landing Gear Jack Points.** (See Figure 3-8 & 3-9.)

- a. Position specified gear jack under built-in jack points on the gear(s) desired to be raised.

**CAUTION**

At high gross weights, sufficient footing shall be provided under the jack feet to ensure that the aircraft is raised and that jacks are not forced down into the ground or floor.

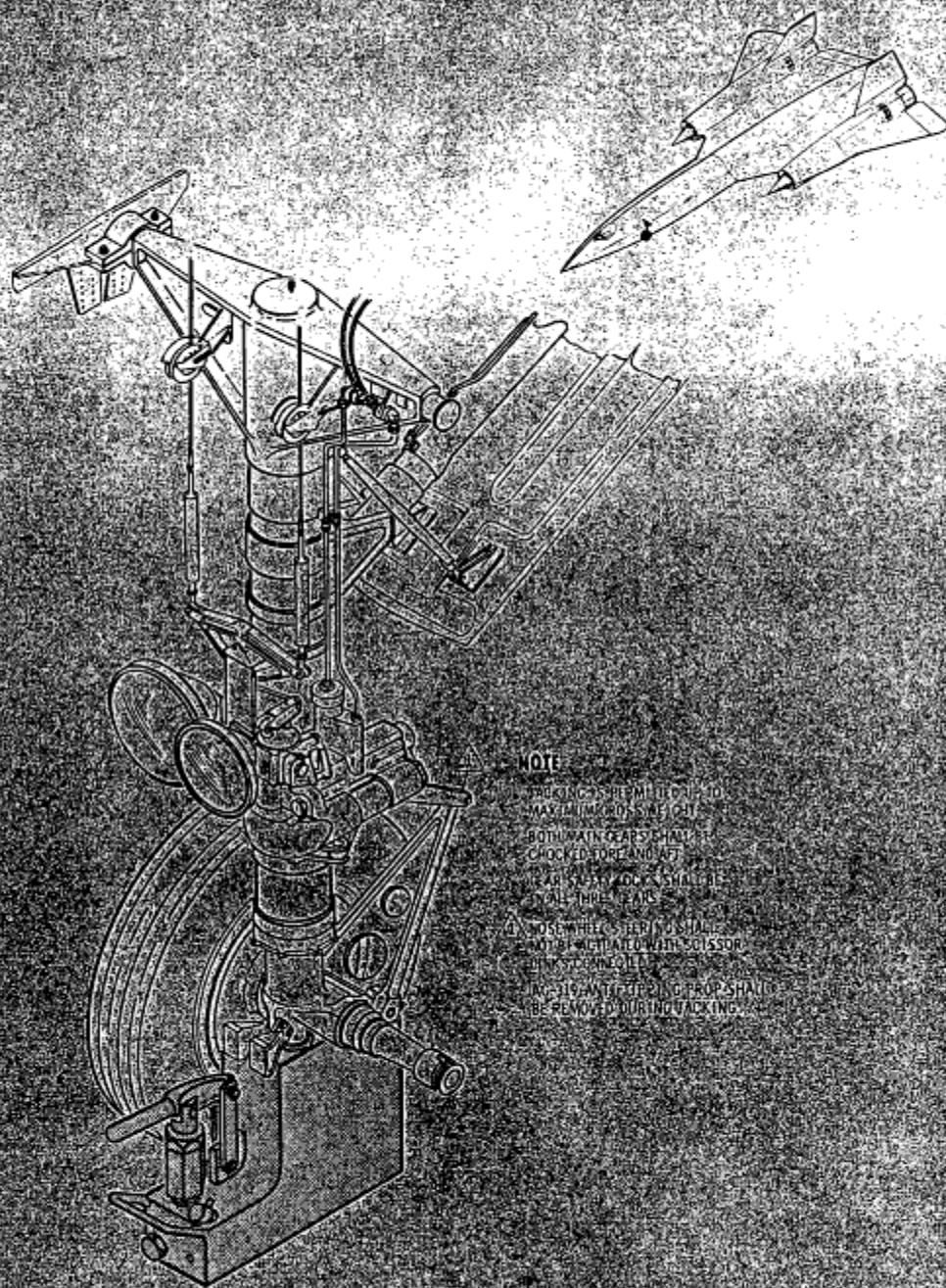
**Note**

Should the tire spread prevent installation of the AG-49 Jack Beam, it will be necessary to relieve tire loads by reducing gross weight to 68,000 pounds.

- b. After all required maintenance has been completed, slowly and smoothly lower landing gear wheels down on to the floor and remove all jacking equipment.

3-31. **Deceleration Parachute Handling.**

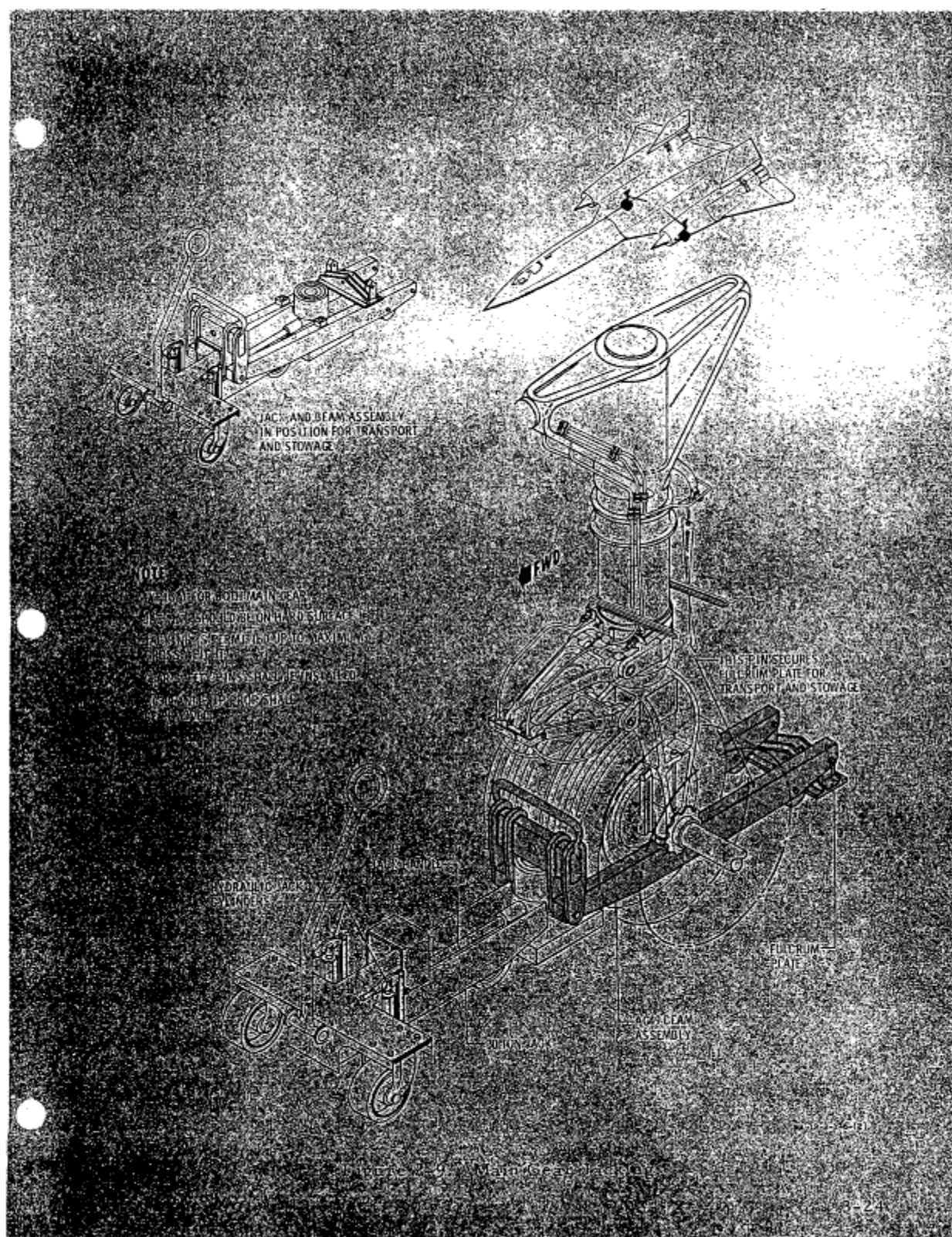
- 3-32. The aircraft is equipped with a deceleration parachute system which is used as a supplement to the aircraft brakes. It is used to reduce rollout distance during an aborted take-off or after a landing.



# NOTE

TRUCKING IS PERMITTED UP TO  
MAXIMUM CROSSWIND OF 11.  
BOTH MAIN GEAR SHALL BE  
CHOCKED FORWARD 1/2".  
TAIL GEAR WHEEL SHALL BE  
TO ALL THREE GEAR.  
4. ROSE WHEEL STEERING SHALL  
BE REGULATED WITH SCISSOR  
LINK SYSTEM ONLY.  
AIRSHOW ATTENDING PROP SHALL  
BE REMOVED DURING LANDING.





Normally a crew of three men with a suitable vehicle will be required to retrieve the deceleration parachute after it has been jettisoned. The deceleration parachute assembly will be gathered up and placed in a suitable container to keep it clean and protect it from snagging or tearing.